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PROCEEDINGS

OF THE

THIRTY-FIRST ANNUAL SESSION

IOWA STATE MEDICAL SOCIETY,

HELD AT

COUNCIL BLUFFS, MAY 16 AND 17, 1883.

FIRST DAY — MORNING SESSION.

COUNCIL BLUFFS, IOWA,
May 16th, 1883.

The thirty-first annual meeting of the Iowa State Medical Society convened at the hall of the Ancient Order of United Workmen, in Council Bluffs, May 16th, 1883, at 10 o'clock A. M., and was called to order by the President, and formally opened with prayer by the Rev. Cyrus Hamlin.

OFFICERS PRESENT.

President — D. SCOFIELD, Washington.
Vice-President — S. E. ROBINSON, West Union.
Secretary pro tem. — D. MACRAE, Council Bluffs.
Acting Assistant Secretary — G. P. HANAWALT, Des Moines.
Treasurer — G. R. SKINNER, Cedar Rapids.

[The Secretary — J. F. KENNEDY, of Des Moines — arrived during the day.]

The following permanent members were present and registered during the day:

D. Scofield, Washington.
D. Macrae, Council Bluffs.
G. P. Hanawalt, Des Moines.
W. S. Robertson, Muscatine.
W. S. Schermerhorn, Jefferson.
F. E. Cruttenden, Des Moines.
L. C. Swift, Des Moines.
T. R. Ward, Oxford.
A. L. Wright, Carroll.
W. H. Ward, Des Moines.

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E. F. Clapp, Iowa City.
H. C. Huntsman, Oskaloosa.
C. G. Lewis, Ottumwa.
J. C. Hinsey, Ottumwa.
J. W. Gustine, Carroll.
J. E. Sansom, Anita.
W. C. Schultze, Marengo.
J. S. Watts, Millersburg.
A. A. Rawson, Corning.
S. E. Robinson, West Union.
D. W. Crouse, Waterloo.
C. W. De Mott, Shelby.
G. O. Morgridge, Muscatine.
Edith M. Gould, Des Moines.
R. W. Huston, Eldon.
D. C. Brice, De Soto.
E. H. Hazen, Davenport.
Ira L. Welch, Humboldt.
G. H. Grimmell, Jefferson.
George Warne, Independence.
F. A. Xanten, Avoca.
J. Williamson, Ottumwa.
G. H. Hill, Independence.
J. D. Miles, Washington.
G. R. Skinner, Cedar Rapids.
J. I. Pogue, Wiota.
W. C. Davis, Indianola.
L. J. Adair, Anamosa.
O. T. Gillett, Iowa City.
C. M. Hobby, Iowa City.
A. C. Simonton, Des Moines.
B. H. Criley, Dallas Center.
A. A. Deering, Boone.
H. D. Ensign, Boone.
D. H. Worthington, Fairfield.
E. L. Baker, Indianola.
W. M. Park, Indianola.
J. W. Holiday, Burlington.
F. W. Porterfield, Atlantic.
J. E. Howe, Greenfield.
W. F. Peck, Davenport.
C. H. Rawson, Des Moines.
W. W. Hale, Des Moines.
A. L. Worden, Des Moines.
D. Langan, De Witt.
E. W. Clark, Grinnell.
C. Brown, Sac City.
D. S. Grossman, Dallas Center.
J. F. Kennedy, Des Moines.
S. Druett, Marysville.
J. D. Holmes, Audubon.
R. W. Miller, Menlo.
T. B. Lacey, Council Bluffs.
J. M. Emmert, Atlantic.
W. F. Graham, Atlantic.
J. H. Auld, Dallas.
H. Ristine, Cedar Rapids.
J. Green, Council Bluffs.
J. M. Ristine, Cedar Rapids.
H. B. Ransom, Burlington.
L. J. Alleman, Boone.
C. B. Bosbyshell, Glenwood.

On motion of Dr. J. Williamson, chairman of the Committee of Arrangements, the following members were appointed to fill vacancies in that committee, viz.: Drs. J. T. Miller, of Washington; T. J. Caldwell, of Adel; and H. W. Hart, of Council Bluffs.

The following delegates were reported present during the session by the Committee of Arrangements, and were duly elected members of the Society:

Botna Valley Medical Society—W. F. Graham, Atlantic; J. F. Cloughley, Audubon; Charles F. Darnall, Walnut.

Central District Medical Association—F. J. Kriebs, Carroll; P. S. Moser, Boonsboro; R. S. Gwynn, Madrid; O. W. Lowry, Grand Junction.

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Council Bluffs Medical Society—A. S. Burtt and J. A. Donalan, Glenwood; H. W. Hart, Thomas B. Lacey, J. H. Cleaver, F. T. Seybert, J. M. Barston, and C. Deethan, Council Bluffs; H. C. McCleary, Logan; F. S. Thomas, Carson; S. N. Harvey, Neola.

Clinton County Medical Society—William Fitzgerald, Grand Mound.

College of Physicians and Surgeons—J. A. Scroggs, Keokuk.

Eastern Iowa District Medical Society—J. H. Hull, Ainsworth.

Guthrie County Medical Society—W. A. Hawley, Menlo; J. H. Kearsey, Stuart.

Harrison County Medical Society—C. W. McGarven, Missouri Valley; Irving C. Wood, Woodbine.

Hospital for Insane—H. A. Gilman, Mt. Pleasant.

Iowa Central Medical Society—William B. Kibbey and Rosa Martin Upson, Marshalltown.

Iowa City Medical Society—S. S. Lytle, Iowa City.

Jefferson County Medical Society—F. R. Smith, Pleasant Plain.

Jasper County Medical Society—C. C. Smead, Knoxville.

Louisa County Medical Society—E. I. Hall, Lettsville.

Maple Valley Medical Society—William Davis, Mapleton; E. C. Heilman and G. C. Morehead, Ida Grove.

Page County Medical Society—G. J. Moss, Shenandoah.

Polk County Medical Society—J. W. Cokenower, J. W. Adams, E. J. McGorrisk, R. McNutt, and D. W. Smouse, Des Moines.

Sac County Medical Society—L. F. Jones, Sac City.

Scott County Medical Society—Jennie McCowen, Davenport.

Sioux City Medical Society—E. D. Freer, Salix.

South-western Iowa Medical and Surgical Society—W. H. Christie, Creston; W. F. Randolph, Bedford.

Story County Medical Society—Peter Joor, Maxwell; P. W. Farrar, Nevada.

Washington County Medical Society—H. Cushman, Brighton; W. E. Fraser, Washington.

Woodbury County Medical Society—D. O. Doherty, Sioux City.

Warren County Medical Society—L. H. Surber, Cool.

Dr. T. J. Caldwell, of Adel, chairman of the Committee on Ethics, moved that the President fill vacancies on that committee.

The President appointed Drs. B. H. Criley, of Dallas Center, and J. D. McCleary, of Indianola, to fill the vacancies.

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On motion of Dr. J. D. Miles, the reading of the minutes of the last session was dispensed with, as they had been printed and distributed to the members.

Dr. J. M. Emmert, of Atlantic, objected to the election of Dr. D. W. Smouse, of Des Moines, as a member, alleging unprofessional conduct on the part of Dr. Smouse in a case occurring in Dr. Emmert's practice.

The objection of Dr. Emmert was referred to the Committee on Medical Ethics.

On motion of Dr. E. F. Clapp, the Society adjourned, to meet at 2 o'clock P. M.

FIRST DAY — AFTERNOON SESSION.

The Society met at 2 o'clock P. M., President Scofield in the chair.

The Committee of Arrangements announced the hours of the sessions as follows: Morning, 10 to 12; afternoon, 2 to 6; and probably an evening session.

Dr. T. J. Caldwell, chairman of the Committee on Medical Ethics, made a statement in regard to the objections raised by Dr. Emmert against the admission of Dr. Smouse, of Des Moines, saying that there was a misunderstanding, and, proper explanations having been made, the objections were withdrawn.

The hour for the President's Address having arrived, Vice-President S. E. Robinson took the chair and announced, as the regular order of business, reading of the President's Address.

The address was listened to with marked interest, and was as follows:

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PRESIDENT'S ADDRESS.

GENTLEMEN OF THE IOWA STATE MEDICAL SOCIETY:

By the requirements of our constitution, there devolves upon me at the present time the pleasant duty of calling your attention to matters of interest to our Society and the profession at large. The eventful year just closed has been one freighted with important discoveries and occasions which can but reasonably serve well in the advancement of our profession. To these, I trust, your attention will be timely called by the chairmen of the several sections in their reports. Some of these sections we were compelled to reconstruct at a comparatively late day, on account of the enforced absence or removal from the State of their heads or some important members. In the selection of the membership of these several sections, we have endeavored to secure the services of representative members of the profession, and to have the different portions of the State fairly represented. What the results will be we cannot at this early time more than surmise; but we feel that the Society has acted wisely in thus dividing and systematizing its labors, and that, if not at the present meeting, still in the near future, the wisdom of this action will be manifested, not only in the increased interest, but also in the decided improvement in the quality of the essays presented for our consideration.

Our Publishing Committee has, during the year, compiled from the material in its possession and issued in book form another volume of this Society's transactions. While it may not be all that we could have desired, still we must admit that it indicates an improvement in the right direction. This committee, with great reason, still complains that many papers presented to and read before the Society are, for some reason — most probably carelessness — retained by their authors, who neglect to forward them, and the committee is thus compelled to ignore even their existence. Now, this appears to us an evil of grave import. Every paper read before this Society, if received, should really and strictly become a part and parcel of its property, and be subject to its disposal. May we not hope for all necessary action to secure such a desirable end?

The important question of journalizing our transactions and papers has, we believe, been brought before the Society by the proffer of the publishers of some medical journal, coupled with

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the condition that the Society shall subscribe for a certain number for distribution among its members. While such a course of action might be a matter of economy for the Society, still we feel that a due consideration for our credit and honor will prompt us to retain, and from time to time publish, such parts of our proceedings and papers as shall be deemed expedient, and in a form for effectual preservation, as such a course only can preserve to us any competent history of our doings or records, which shall prove valuable as a part of the medical history of our State.

MEMBERSHIP.

At this time we are not advised what recommendations the Committee on the Revision of the Constitution may report, but we feel that greater care should be exercised in the admission of members to our Society. In these days of loose medical education and bogus diploma mills, without more care than heretofore exercised, unworthy persons will have their names enrolled among us even as permanent members. Would it not be well for this Society to limit its permanent membership to about one or two from each county in the State, while representation by delegates from the different county societies, schools, and hospitals shall remain about the same as now constituted? Let the delegates be entitled to membership *pro tem.* only, or for the especial meeting of the Society to which they were regularly and properly sent. Let the price for permanent membership be such as shall cause it to be esteemed really an honor to be so elected — as, for instance, the preparation, presentation, and acceptance by the Society or its Committee on Publication, of an essay upon some professional subject, and a repeated evidence of the confidence and esteem of their fellows, shown by their being chosen as their delegates to at least two annual meetings — and a long stride will have been taken towards the desirable end of securing not only more important, but also more perfect, papers for the use of our Publishing Committee. No form of organization could be devised, however, that would not be liable to some serious objections, so diverse and variable are the individual interests of the members of our profession.

In this connection, permit me also to recommend that a judicious system of prize-giving be provided for. If necessary to do this, let our annual dues remain as heretofore, which will

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permit the Society to inaugurate such a course without serious financial embarrassment, and will probably serve to stimulate original research, and thus contribute to the material improvement of our proceedings, as well as to the interest and profit of our meetings.

Some arrangements should be made whereby a complete programme of the papers to be presented at each session of the Society could be in the possession of every member at least one month before the meeting. The chairman of each section should provide for the order in which the papers of his section shall be read, also for the suitable discussion of the subjects as presented; and, to this end, he should be empowered, permitted, and enjoined to notify such members as he intends to call upon to address the Society, of the particular subjects which they will be expected to discuss. But few members will have the temerity to arise in their places and open a discussion upon a subject to which their attention may have been directed only while listening to the reading of a carefully prepared essay — especially to differ. By this, or some similar course, we believe that a greater profit will be received by our members and a larger attendance secured at our meetings; while the essayist, perhaps, may not feel, from the limited discussion which his studied effort evokes, that he has been "casting pearls before swine."

MEDICAL EDUCATION.

It would seem that the time had fully come when the medical profession in Iowa should assume to exercise some judicious control over its membership. Year after year do the various schools of this and other States presume to project upon us the oftentimes crude workmanship of their institutions. They assume to know our wants, and to supply without limit or order. Should we not demand of our Legislature some safeguards to our profession? At least, may we not have a committee appointed by this Society, or the State executive council, charged with the duty of examining all the candidates for graduation from the medical schools in this State, and to have an authoritative voice in their graduation? Such a course, we believe, is now in practical operation in the Medical Department of our State University. The expenses of such a committee could be provided for by a nominal fee collected from persons examined. It should also be charged with the further

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duty of examining all persons coming from other States or countries to practise within our borders; and without the certificate of this committee no person should be permitted to register or practise as a physician or surgeon. It will doubtless be objected that a committee thus constituted would find it impossible to properly examine the proposed graduates of irregular and nondescript schools. This should not be an insuperable obstacle, as these schools, we suppose, have their published requirements for graduation, and this committee should have the power to see them most rigidly enforced on the part of the faculties, and that a set of unworthy, half-educated persons be not thrust upon the people of the State by a set of unscrupulous individuals, self-constituted faculties, whose motive for the graduation of their classes may be only the fees which they receive therefor, and the cheap notoriety of having their names flaunted before the people as professor of this or that subject, with office upon —— street and at —— number. Other professions have their rules and regulations governing the admission of members to their ranks, and to none are they admitted without greater safeguards and more assurance of their qualifications and fitness than to ours. The matter of preliminary education of the student about entering upon the study of medicine is almost wholly ignored by a great majority of our schools. A money qualification only is required of them. The results are what we might have anticipated from such a course. Many are forced to regard a degree, obtained as very many now are, of questionable honor and limited utility. Prescriptions are made and medicines ordered, the most common names of which are so misspelled as to seem most studiously made so. The wisdom of our Legislature seemed to have been exhausted in the enactment of a pharmacy law, which, though necessary, and good enough in itself, requires that competent hands shall compound the prescriptions of all, without the slightest regard to their fitness, education, or ability to prescribe. Such a law, without another defining who may prescribe, and under what circumstances, will stand out in bold relief as a monument of legislative indifference and folly.

STATE BOARD OF HEALTH.

The regulations of our State Board of Health, and laws governing the same, are in many localities rendered nugatory because of the strange neglect or willful refusal of so many to

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make the required reports. It does seem strange that, in a State which protects no rights of the profession, labor and time should be demanded of it without reward or recompense. We had hoped, however, that the general professional pride would prompt all our members to a cheerful compliance with all the needful requirements of this board, to the end that a compilation of vital statistics may be secured that will reflect credit upon our State.

CARE OF THE INSANE.

The exceedingly rapid development of our State, not only in commercial resources, but also in its increase of inhabitants, has rendered imperative additional facilities for the care of our insane, the number of which increases more rapidly in proportion than does our census enumeration. Our present hospitals for this class, which are probably of the average in capacity and appointments, are still very inadequate to our wants. Many of this unfortunate class are now confined in our jails and almshouses, without due regard to humanity or decency, being let out frequently to board to the lowest bidders, whose chief, if not only, motive is their gains from their limited care and requirements. As a body, our voice should be heard in an unmistakable demand for more extended and better accommodations for this class of our unfortunates. Let either additional wards be added to the present institutions, or a separate hospital created for the care of the chronic insane, or that part of this class which may not require medical treatment, and such a course will relieve the present institutions of their overcrowded numbers and render them far more efficient. A most rigid inspection should be frequently had of all places where any of the insane are confined, be they either public or private, to guard against abuses which so readily insinuate themselves into most institutions of this kind. Moreover, a better understanding of the primary causes leading to mental aberrations and insanity should prevail among medical men, that these cases may be properly treated in their incipiency, so that the constantly increasing army of the insane may be arrested, and more of them returned to their proper stations in society and to their friends.

The care of the criminal insane, it seems to us, is as much a question for the jurist as for the physician; but that they should be seduously segregated is, for reasons apparent, advisable and necessary. There are included in this class so many

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maligners, that it would appear that nothing short of solitary confinement would adequately fulfill the requirements for their care; and this would require a prison, rather than an asylum or hospital.

EXPERT EVIDENCE.

The frequent appearance of medical men as witnesses in our courts is to many a source of wonderment; while frequently the matter, as well as the manner, of their evidence is a source of dishonor and damage, rather than of credit, to our profession. Subpœnas are now issued to the local doctor upon the most trivial pretexts, and he is dragged from his business into the court-room to answer, perhaps, the ridiculously framed questions of some new-fledged attorney, whose knowledge of the subject-matter is so limited that he is not able to interrogate in a manner to be understood; and, if answers are made to his questions only, neither court nor jury can be benefited. Opposing counsel call other doctors — competitors in business, perhaps — whose adverse opinions to those already given are most frequently formed from the garbled and one-sided statements of the case; and we now have the disgraceful scene of conflict among doctors, who, under such circumstances, are quite likely to be partisan in their feelings and seek to influence courts and juries unduly.

The limited amount of expert fees allowed by our State law — which we believe to be alike unjust, invalid, and unconstitutional — has tended to greatly increase the amount and enormity of this evil. Litigants, feeling that their interests may be served by the incurring of such trifling additional expense, summon so-called experts when really none are required. In most of the important criminal cases, at least, do we witness doctors arrayed against doctors, for the plaintiff and for the defendant, the majority of whom, perhaps, cannot justly lay any legal claim to being considered as experts.

The cunning and ambiguously formed questions of opposing counsel will make it appear to the average jury that there exist flagrant contradictions in their testimony. What wonder, then, that many doctors lose their usual calm dignity and self-possession, become irritated, and acquit themselves in such a manner as will reflect no honor upon their profession nor contribute to the useful knowledge of either the court or jury? To such an extent has this evil grown, that it is a commonly expressed belief among attorneys that it matters not what a doctor may testify to, for others will contradict.

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Remedies for these evils should be sought out and applied with an unsparing hand. Our law should not permit any one to be called as an expert unless he can justly claim some particular qualification to such title; and, when thus summoned, it should be by the especial order of the court, and as witness for the court and jury, and for neither plaintiff nor defendant. The questions should be propounded by the court, or some one especially delegated by it, and seek such information of a scientific character only as will enlighten either the court or jury upon the scientific questions involved in the case; and, when all this is done, permit no Legislature, in an economic spasm, to fix the compensation at such ridiculously low figures as will barely pay the necessary expenses of a person thus summoned, but enjoin upon the court to allow such compensation as such ability used would command in the location where it is required.

LIFE-INSURANCE EXAMINATIONS.

We desire also, in this connection, to call attention to what we regard as a grievous imposition upon our profession in Iowa. We allude to the demands made by life-insurance companies, and the various mutual benevolent associations, to have their examinations made for such wholly inadequate amounts as are tendered. Few or none of us charge our patrons so little for kindred services, and why should these corporations, many of them rich, command our services for less than their real value? Moreover, the true interest of these companies is to secure better examinations, for which they should willingly pay a more liberal compensation.

THE NEW YORK CODE.

To what is generally called the "New York Code" we desire to call your attention, and to bespeak your calm and cautious treatment of this important subject, just now such a disturbing element to the harmony of the profession of the country. The New York delegation was refused admission to the American Medical Association at its late meeting held in St. Paul, and perhaps most of us felt at least secret gratification at such action of our parent society. How any one could have anticipated other action would indeed seem strange. A State society owing and owning allegiance to the national association should have sought redress for the evils and abuses complained of in a constitutional and lawful manner, and not have

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precipitately thrown itself into a state of open rebellion to the laws and requirements of the parent society. After due and timely effort to correct the evils and abuses complained of by a change or modification of the code of the national association, and failure — then, and then only, could we justify the course of the New York State Medical Society in adopting for itself a code of ethics so antagonistic to that of its rightly governing society. Moreover, the apparent lack of unanimity among themselves, as shown in the action of their various local societies, has been such as would not seemingly justify any society in hurriedly making important changes in the fundamental principles governing the individual actions of its members. While a just spirit of liberality should prevail among all medical men, and, under certain circumstances, all formalities be laid aside rather than jeopardize the life of a patient, still it is a well-recognized fact that some agreement and concerted action are needful to secure a proper coherency in our profession and the general welfare of our patients. If the national association accords to State societies the right to modify or set aside our general code, then why not to county societies, and even individuals? Such a course could only open wide the door and cordially invite the evils which the code was instituted to exclude. If evils and defects exist in our present code, passed down to us as the heritage of other times, let us, for the common welfare, most patiently submit to them, hopefully abiding the time when the rapidly advancing ideas and ever-increasing spirit of liberality shall provide the legitimate means for their extermination; but let us not deliberately, or by any inconsiderate actions of our own, bring about a state of anarchy and confusion, which can only result in dishonor and disgrace, while it may serve to destroy the usefulness of a noble profession. Personal rights and privileges must always be conceded for the formation of any custom or law which shall have any restraining effect.

In conclusion, gentlemen, permit me to crave your indulgence for the imperfect and fragmentary manner in which I have called your attention to some very important matters, which affect not only the interests of our profession, but also those of the people of our State at large. When rightly considered, our interests cannot be otherwise than mutual. The elevation of our professional standard means, also, the comparative elevation of the masses. When such ends are to be

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accomplished and such necessities exist, who would not be willing, yea, anxious, to pioneer the required movements?

We are accustomed to point with justifiable pride to the many and illustrious names from the ranks of our profession which fame has inscribed upon the durable tablets of her temple. In every department do we find them. Then let us not be laggards in our work, but seek diligently, each in his own proper sphere, to accomplish something which shall add materially to the advancement and honor of our chosen profession. May we not hope that the Iowa State Medical Society, capable as we believe its membership to be, shall not be the least in forwarding the great work entrusted to our care? To the fulfillment of this hope let us organize, and, if needs be, reorganize, and labor most diligently and unceasingly until the fruits of our labors shall appear. We must regard efforts made and influences exerted as perpetual in their effects, and not be disappointed if we do not immediately reap the rewards of our labors. Objects of permanency in the material world and principles durable in political and social affairs are of but slow growth. Therefore, let us sow diligently, though others may reap.

I thank you, gentlemen, for your attention.

Dr. T. J. Caldwell moved that a committee of three should be appointed on President's Address, and that Dr. William Watson, of Dubuque, should be the chairman of said committee.

Vice-President Robinson appointed as such committee Drs. William Watson, G. H. Hill, and L. J. Adair.

Dr. G. H. Hill, of Independence, moved that a section of Nervous Diseases and Idiocy be added to those already organized; which motion, after some remarks, was withdrawn.

The Committee of Arrangements reported several gentlemen present from Omaha, Nebraska, and they were elected members by invitation. [No list furnished.]

S. B. Thrall, of Ottumwa, chairman of the section on Medicine, reported by reading a paper on the "Mineral Waters of Iowa."

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William Davis, of Mapleton, read a paper from this section on "Diphtheria."

On motion of S. B. Thrall, it was voted that the discussion of papers before this section be limited to five minutes each.

The papers were discussed by Drs. McClure, Ross, Clapp, Robertson, Jenkins, Watson, Robinson, and Simonton.

On motion, the papers were received and referred to the Committee on Publication.

W. S. Robertson, of Muscatine, read a paper presenting the cause of the Army Medical Museum and Library, and offered the following resolutions:

Recognizing the great national importance of the collection of books, records, and specimens constituting the Army Medical Library and Museum at Washington, D. C., and their incalculable value to the medical profession, not only of this country, but of the whole world; and in view of the very unsafe condition of its locality and surroundings from conflagrations; therefore, be it resolved,—

1st. That this Society, representing the medical profession of the great State of Iowa, does most respectfully and earnestly ask our Senators and Representatives in Congress to use all legitimate means to insure, at as early a date as practicable, an appropriation of public funds for the erection of a suitable fire-proof building in the city of Washington for the reception and safe-keeping of said library and museum.

2d. That our Senators and Representatives in Congress be requested to advocate and support the appropriation of a sum not less than $10,000 a year for a liberal support and increase of the medical library, and a further appropriation of a sum not less than $5,000 a year for the purposes of the museum.

3d. Recognizing the incalculable advantages of the index catalogue to all medical and scientific workers who may be interested in the medical library and museum, we further ask our Senators and Representatives to use their whole influence in authorizing the printing of the rest of the index catalogue.

4th. That the medical profession of Iowa do here and now enter their most earnest protest against the Army Medical Library being merged into the Congressional Library, or having it removed from its present efficient management so long as that is satisfactory.

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5th. That a committee from this State Medical Society shall be appointed to draft a memorial, to be presented to Congress in December next, upon the subject contemplated in these resolutions.

6th. That a copy of these resolutions, bearing the signatures of the officers and attestation of the Secretary of this State Medical Society, be forwarded to each of our Senators and Representatives in Congress, as expressing the views of the medical profession of Iowa on the subject-matters therein contained, and very respectfully ask them to appreciate our earnest interest and solicitude for the preservation and increase of this great library and museum as a crowning glory of American medicine and surgery.

H. A. Gilman, of Mt. Pleasant, moved that the paper be received and referred to the Committee on Publication, that the resolutions be adopted, and that a committee to memorialize Congress be appointed.

E. F. Clapp, of Iowa City, moved that the committee consist of one member from each congressional district.

S. B. Thrall, of Ottumwa, moved that the committee consist of three members, of which W. S. Robertson should be chairman.

This motion prevailed, and the President appointed as such committee, W. S. Robertson of Muscatine, D. W. Crouse of Waterloo, and W. B. Ransom of Burlington.

W. F. Peck, of Davenport, chairman of the section of Surgery, presented a report upon some of the recent improvements in operative surgery, new instruments, etc., including a narration of cases illustrating surgery of the abdominal cavity.

D. Macrae, of Council Bluffs, read notes of a case of malformation of both hands and feet in a child, illustrated by photographs of same. (See paper.)

These papers were discussed by A. C. Simonton of Des Moines, G. H. Hill of Independence, W. Watson of Dubuque, A. J. Ross of Perry, and William Fitzgerald of Grand Mound; and, on motion, were referred to the Committee on Publication.

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The members from the different congressional districts were requested by the President to meet and select a member from each district for the Nominating Committee, and to report at the evening session.

On motion, the Society adjourned to 8 o'clock P. M.

FIRST DAY — EVENING SESSION.

The Society was called to order at 8 o'clock P. M. by President Scofield.

The following members were reported from the different congressional districts as constituting the Nominating Committee:

Committee on Nominations.— 1st District, J. D. Miles, of Washington; 2d District, W. S. Robertson, of Muscatine; 3d District, William Watson, of Dubuque; 4th District, S. E. Robinson, of West Union; 5th District, O. T. Gillett, of Iowa City; 6th District, C. G. Lewis, of Ottumwa; 7th District, W. W. Ward, of Des Moines; 8th District, A. A. Rawson, of Corning; 9th District, J. M. Emmert, of Atlantic; 10th District, L. J. Alleman, of Boone; 11th District, A. S. Wright, of Carroll.

J. M. Emmert, of Atlantic, presented a paper on a case of intestinal obstruction, with operation.

On motion, the paper was received and referred to the Committee on Publication.

G. H. Hill, of Independence, read an interesting paper on "What ought we to do with the Incurably Insane in Iowa?"

The paper was discussed by H. A. Gilman, Mt. Pleasant; E. F. Clapp, Iowa City; S. B. Thrall, Ottumwa; H. Cushman, Brighton; A. W. McClure, Mt. Pleasant; William Fitzgerald, Grand Mound; William Watson, Dubuque; D. W. Crouse, Waterloo; and C. M. Hobby, Iowa City.

On motion, the paper was received and referred to the Committee on Publication.

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On motion of A. W. McClure, Mt. Pleasant, it was voted that a committee, consisting of a member from each congressional district, should be selected to memorialize the Legislature on the subject of the care of the insane, and that the committee should be selected by the Committee on Nominations.

The Society adjourned at 10 o'clock P. M. to meet at 9 o'clock A. M.

SECOND DAY — MORNING SESSION.

The Society was called to order at 9 o'clock A. M., the President in the chair.

The Secretary read his annual report.

On motion, the report was referred to the Committee on Finance.

Cards from S. B. Chase, Osage; H. L. Getz, Marshalltown; and D. S. Fairchild, Ames, expressing regrets because of enforced absence from this meeting of the Society, were read.

The Committee of Arrangements reported the programme for the day.

J. Williamson, of Ottumwa, read a paper on "Injuries of the Perineum."

L. C. Swift, of Des Moines, read a paper on "Uterine Fibroids."

The papers were discussed by James Carter, Omaha, Neb.; D. W. Smouse, Des Moines; and W. F. Peck, Davenport.

On motion, the papers were received and referred to the Committee on Publication.

The President appointed as Committee on Finance, J. W. Gustine, B. H. Criley, and J. D. McCleary.

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A. S. von Mansfelde, Secretary of the Nebraska State Medical Society, was elected a member by invitation and introduced to the President and Society by the chairman of the Committee of Arrangements.

E. H. Hazen, chairman of the section on Ophthalmology and Otology, gave a review of the literature of the subjects for the past year.

The Committee on Revision of the Constitution and By-Laws reported as follows:

To the Iowa State Medical Society:

We recommend, as a substitute for Section 6, Article V. of the Constitution, the following:

"A board of trustees, consisting of six members, shall be elected. Two members, elected each year, shall hold office for the term of three years, and must be residents of different congressional districts. The trustees shall hold the bond of the Treasurer, and have general supervision of the affairs of the Society not otherwise provided for. At a request of the majority of the board, the President may call a special meeting, or change the time of holding the annual meeting of the Society."

Also that Article IX. be amended by adding, "There shall be a standing committee of three upon State Medicine, and one upon Diseases of the Mind and Nervous System," in the list of standing committees; and, at the close of this article, "A Committee on Revision of the Constitution and By-Laws shall be appointed each year, to whom shall be referred any proposed change in amendments."

E. S. Robinson,
J. Williamson, } *Committee.*
J. F. Kennedy,

C. M. Hobby, of Iowa City, read a paper on "Strabismus." The paper was discussed by E. H. Hazen, F. E. Cruttenden, and C. M. Hobby.

J. F. Kennedy, chairman of the Committee on Publication, reported as follows:

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To the Officers and Members of the Iowa State Medical Society — Gentlemen:

Your Committee on Publication would respectfully report, that, since the last meeting, we have published Volume V. of the Transactions of the Society, covering the years 1881 and 1882. The edition consisted of 500 volumes of 228 pages — 350 of which were bound in green cloth, and 150 in paper. The cost of printing and binding was $292. The mechanical execution and the character of the contents compare favorably with any previous volumes. Still the committee feel that a volume of the transactions of a society numbering so many able men should, as the work of two years, show a much larger number of valuable practical papers. The Iowa State Medical Society ought to be the peer of any of our sister State societies; and yet it is a fact, that, after thirty-one years of existence, only five volumes of transactions have been published, and these not always of a character exempt from adverse criticism. All other States publish a volume of transactions annually. May we not strive to do the same in the future?

Respectfully submitted.

J. F. Kennedy,
J. Williamson, } *Committee.*
E. H. Hazen,

The report was received, and referred to the Committee on Publication.

The Committee on the President's Address reported as follows:

To the Iowa State Medical Society:

Your committee, to whom was referred the recommendations of the President's address, would submit the following report:

While doubting the wisdom of frequent changes of the constitution, we regard with favor the suggestions for increased care in the admission of new members, and would suggest, that, whenever a change is made, permanent membership be restricted to those who have attended three annual meetings as delegates.

The suggestion in relation to enabling the chairmen of the several sections to announce in advance, to those whom they may think likely to be interested in their discussion, the subjects of the essays to be presented, if successfully carried out,

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can hardly fail to make the discussions more interesting; and is worthy of careful consideration.

We cordially indorse all the President has said concerning the more thorough education of medical students. We believe that every applicant for admission to either of the medical schools of the State should be required to pass a preliminary examination, and that no one should be allowed to matriculate unless he has sufficient education in the common English branches to enable him to obtain a teacher's certificate. We advise that every member of this Society discourage all young men from engaging in the study of medicine who have not been able to secure the advantages of a high-school course, or who otherwise lack capacity to become successful physicians.

The suggestions in relation to securing the results desired by the State Board of Health will commend themselves to every member.

The subject of securing more efficient relief for the chronic insane having been referred to a special committee to memorialize the next Legislature, we would respectfully suggest that the subject of expert evidence be referred to the same committee, with suggestions to prepare a memorial asking that experts shall be summoned only by order of the court, as witnesses for the court and jury, and not specially in the interests of the plaintiff or defendant.

As to the question of sustaining the action of the American Medical Association in relation to the Code of Ethics, the Iowa State Medical Society is prepared to stand by the code in the future as in the past, and our delegates are instructed to act accordingly.

Respectfully submitted.

WM. WATSON,
L. J. ADAIR,
G. H. HILL,
} *Committee.*

On motion of J. Williamson, chairman of the Committee of Arrangements, the papers of D. S. Fairchild, on "Microscopy," and of A. Reynolds, on "Cerebral Hemorrhage," in the absence of the authors, were referred to the Committee on Publication.

On motion of C. M. Hobby, it was voted to add "Pathology" and "Morbid Anatomy" to the section on Microscopy.

W. W. Hale, of Des Moines, chairman of the section on

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Materia Medica and Therapeutics, read a paper on "The New Remedies," referring to the action of Iodoform, when applied locally; also to the action of Resorcin and other remedies, when applied locally and given medicinally.

C. M. Hobby made some remarks in regard to certain experiments he had made with different preparations of Iodoform, showing different reactions, and that there was as yet no true test for Iodoform.

On motion, the paper was received and referred to the Committee on Publication.

The Society then adjourned until 2 o'clock P. M.

SECOND DAY—AFTERNOON SESSION.

The Society met at 2 o'clock P. M., President Scofield in the chair.

William Watson, of Dubuque, chairman of the Committee on Nominations, made the following report:

PRESIDENT OF THE IOWA STATE MEDICAL SOCIETY:

Your Committee on Nominations beg leave to make the following report:

The committee was organized by electing William Watson chairman, and J. M. Emmert Secretary. The following-named gentlemen were then nominated:

For President—S. E. ROBINSON, West Union.
For First Vice-President—H. C. HUNTSMAN, Oskaloosa.
For Second Vice-President—D. W. CROUSE, Waterloo.
For Secretary—A. A. DEERING, Boone.
For Assistant Secretary—A. C. SIMONTON, Des Moines.
For Treasurer—G. R. SKINNER, Cedar Rapids.
For Trustees—J. D. MILES, Washington; D. S. FAIRCHILD, Ames; J. B. WILSON, Creston.

Committee on Ethics.—D. Scofield, Washington; William Watson, Dubuque; J. D. McCleary, Indianola; C. M. Hobby, Iowa City; J. M. Knott, Sioux City.

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Place of Next Meeting — DES MOINES.

Committee of Arrangements.— G. P. Hanawalt, Des Moines; A. C. Simonton, Des Moines; E. W. Clark, Grinnell; J. M. Emmert, Atlantic; L. J. Alleman, Boone.

Committee on Publication.— A. A. Deering, Boone; G. R. Skinner, Cedar Rapids; J. Williamson, Ottumwa; J. D. Miles, Washington; W. D. Middleton, Davenport.

Committee on Necrology.— 1st District, D. W. Overholt, Columbus Junction; 2d District, W. W. Grant, Davenport; 3d District, C. C. Bradley, Manchester; 4th District, S. B. Chase, Osage; 5th District, W. C. Schultze, Marengo; 6th District, S. B. Thrall, Ottumwa; 7th District, L. C. Swift, Des Moines; 8th District, G. P. Ross, Shenandoah; 9th District, D. Macrae, Council Bluffs; 10th District, H. G. Ristine, Fort Dodge; 11th District, W. S. Schermerhorn, Jefferson.

Committee on Insanity, to Memorialize the Legislature.— 1st District, A. W. McClure, Mt. Pleasant; 2d District, Jennie McCowen, Davenport; 3d District, M. H. Waples, Dubuque; 4th District, S. E. Robinson, West Union; 5th District, J. C. Shrader, Iowa City; 6th District, J. Williamson, Ottumwa; 7th District, J. F. Kennedy, Des Moines; 8th District, P. Lewellen, Clarinda; 9th District, H. W. Hart, Council Bluffs; 10th District, P. S. Moser, Boonsboro; 11th District, G. W. Beggs, Sioux City.

The following gentlemen were nominated as delegates to the American Medical Association:

First District.— D. W. Overholt, Columbus Junction; H. S. Cleaver and John North, Keokuk; H. A. Gilman, Mt. Pleasant.

Second District.— L. J. Adair, Anamosa; W. Fitzgerald, Grand Mound; W. F. Peck, Davenport; W. H. Baxter, Muscatine.

Third District.— G. H. Hill, George Warne, and S. G. Wilson, Independence; B. McCluer, Dubuque.

Fourth District.— S. B. Chase, Osage; J. W. Smith, Charles City; C. C. Parker, Fayette; H. C. Bulis, Decorah.

Fifth District.— H. Ristine, Cedar Rapids; C. M. Hobby, Iowa City; C. C. Griffin, Vinton; J. B. Watts, Millersburg.

Sixth District.— J. C. Hinsey and S. B. Thrall, Ottumwa; H. C. Huntsman, Oskaloosa.

Seventh District.— G. P. Hanawalt, Des Moines; B. H. Criley, Dallas Center; J. H. Kersey, Stuart; T. J. Caldwell, Adel.

Eighth District.—W. H. Christie and J. B. Wilson, Creston; J. E. Howe, Greenfield; S. S. Graves, Afton.

Ninth District.— H. W. Hart, Council Bluffs; F. M. Powell, Glenwood; C. M. DeMott, Shelby; F. A. Xanten, Avoca.

Tenth District.— P. W. Farrar, Nevada; R. S. Gwynn, Madrid; P. S. Moser, Boonsboro; H. G. Ristine, Fort Dodge.

Eleventh District. — Ira S. Welch, Humboldt; W. Davis, Mapleton; J. M. Knott, Sioux City; O. W. Lowry, Grand Junction.

It was moved and carried that the President and Secretary appoint delegates to the adjoining State medical associations.

All of which is respectfully submitted.

WILLIAM WATSON,
Chairman.

J. M. EMMERT,
Secretary.

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W. S. Robertson, Muscatine, chairman of the section on Sanitary Science and Hygiene, presented a very able paper on "Sanitary Science and Preventive Medicine."

S. E. Robinson, West Union, moved that the paper be received and referred to the Committee on Publication, and that Dr. Robertson be requested to publish the same. Carried.

S. B. Thrall, Ottumwa, chairman of the Committee on Medicine, stated that he had several papers to come before that section.

J. Williamson, of the Finance Committee, reported the following bills, and recommended that they be paid:

D. Macrae, expressage on trunk and papers	$ 2 00
J. F. Kennedy, expenses for railroad tickets	3 25
G. R. Skinner, postage, stationery, and exchange	4 50
T. B. Lacey, rent of hall and chairs, janitor, etc	38 85

On motion, the bills were allowed, and it was directed that orders be drawn for the amounts.

The committee recommended that the Secretary be paid $100 for his services the past year; and also that he be allowed the additional sum of $50 for services rendered in publishing Volume V. of Transactions.

On motion of S. B. Thrall, the above amounts were ordered to be paid; and it was also voted that the Treasurer, Dr. Skinner, be paid $50, as he had served the Society for seven years without pay.

The Committee on Medical Ethics reported that there was nothing before them.

S. B. Thrall moved, and the motion was carried, that when this session adjourns it be *sine die.*

The report of the Committee on Necrology was ordered referred to the Committee on Publication.

On motion, it was voted to take up the report of the Nominating Committee.

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On motion of T. J. Caldwell, the Secretary of the Society was directed to cast the vote of the Society for S. E. Robinson, of West Union, for President for the ensuing year; and he was declared duly elected.

The Secretary was also instructed to cast the vote of the Society for H. C. Huntsman, of Oskaloosa, for First Vice-President, and for D. W. Crouse, of Waterloo, for Second Vice-President; and they were declared duly elected.

On motion of T. J. Caldwell, the remainder of the report was adopted as a whole.

The President appointed T. J. Caldwell and J. D. Miles to conduct the President-elect to the chair.

Dr. Scofield, the retiring President, thanked the Society and members for the courtesy shown him.

Dr. Robinson was introduced to the Society, and thanked the members for the honor conferred on him, pledging himself to do what he could to advance the interests of the Society.

J. Williamson offered the following resolutions:

WHEREAS, J. F. Kennedy has for several years served this Society as its Secretary, and has performed his official duties with marked ability and courtesy; and

WHEREAS, He now declines a re-election; therefore, be it

Resolved, That the thanks of this Society are hereby tendered to Dr. Kennedy for the very satisfactory manner in which he has kept the Society's records, and for the obliging and courteous treatment which he has at all times extended to its members.

Resolved, That these resolutions be spread upon the minutes.

The resolutions were adopted unanimously.

The Treasurer, G. R. Skinner, made his report, as follows:

	Dr.	
To cash on hand, as per last report	$1,143 30	
" 5-40 bond	500 00	
" Amt. received from members, Feb. 1, '82, to May 1, '83	40 00	
" interest on bond	25 00	
" amount received from members at Council Bluffs	164 00	
" amount received from 55 delegates	165 00	
		$2,037 30

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	Cr.	
By overcharge on dues	$ 4 00	
" Order No. 91	8 50	
" " " 92	8 00	
" " " 93	10 00	
" " " 94	100 00	
" " " 95	192 00	
" " " 96	50 00	
" " " 97	10 00	
" " " 98	153 25	
" " " 99	2 00	
" " " 100	4 50	
" " " 101	50 00	
" " " 102	36 80	
" cash, to balance	1,408 25	
		$2,037 30

G. R. Skinner,
Treasurer Iowa State Medical Society.

On motion, the report was referred to the incoming Finance Committee.

The President appointed as Finance Committee for the ensuing year, E. W. Clark, Grinnell; H. Ristine, Cedar Rapids; J. Williamson, Ottumwa.

The President appointed the following professional committees:

On Surgery—E. F. Clapp (chairman), Iowa City; C. H. Rawson, Des Moines; B. A. Guyton, Jr., Sioux City.

On Medicine—S. B. Chase (chairman), Osage; T. J. Caldwell, Adel; A. Reynolds, Clinton.

On Obstetrics and Gynecology—J. Williamson (chairman), Ottumwa; D. Macrae, Council Bluffs; Benj. McCluer, Dubuque.

On Materia Medica—P. J. Farnsworth (chairman), Clinton; John North, Keokuk; W. W. Hale, Des Moines.

On Otology and Ophthalmology—H. B. Young (chairman), Burlington; C. M. Hobby, Iowa City; J. M. Ristine, Cedar Rapids.

On Sanitary Science and Hygiene—R. J. Farquharson (chairman), Des Moines; L. J. Alleman, Boone; W. C. Schultze, Marengo.

On Microscopy and Morbid Anatomy—W. D. Middleton (chairman), Davenport; A. G. Field, Des Moines; D. S. Fairchild, Ames.

The Secretary made the following report:

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To the Officers and Members of the Iowa State Medical Society — Gentlemen:

Your Secretary would respectfully submit the following report for the year ending May 16th, 1883:

Orders were drawn on the Treasurer, since adjournment of last meeting, as follows:

1882.				
March 16,	Printing circulars and envelopes,	Voucher No.	91	$ 8 50
" 16,	Postage and stationery,	" "	92	8 00
April 20,	Secretary's supplies,	" "	93	10 00
Sept. 4,	Printing Transactions,	" "	94	100 00
Nov. 21,	" "	" "	95	192 00
" 21,	Postage and wrappers,	" "	96	50 00
1883.				
March 31,	Printing announcemts., and postage,	" "	97	10 00
				$378 50

Volume V. of the Transactions of our Society was published under the supervision of your Secretary.

The total number of members is as follows:

Permanent Members	314
Corresponding Members	3

The Secretary regrets to state that, by mistake, the name of W. S. Schermerhorn, of Jefferson, who is a member of the Society in good standing, was omitted in the last published list of members.

The Society is to be congratulated upon its large membership, the social and professional harmony that exists, and upon its prosperous financial condition. It is to be hoped that a larger prosperity may attend it in the future, and that it may become and remain the peer of any of our sister State societies in intellectual and professional ability.

Respectfully submitted,

J. F. Kennedy, *Secretary.*

On motion, the Society adjourned, to meet at Des Moines, May 21st, 1884.

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PROCEEDINGS

OF THE

THIRTY-SECOND ANNUAL SESSION

IOWA STATE MEDICAL SOCIETY,

HELD AT

DES MOINES, MAY 21, 22, AND 23, 1884.

FIRST DAY—MORNING SESSION.

DES MOINES, IOWA,
May 21st, 1884.

The thirty-second annual session of the Iowa State Medical Society convened in Armory Hall, Des Moines, May 21st, 1884, at 10 o'clock A. M., and was called to order by the President, S. E. Robinson, of West Union, and was opened with prayer by Rev. George C. Henry.

The minutes of the last meeting were read by the Secretary, A. A. Deering, of Boone, and were approved by the Society.

G. P. Hanawalt, Des Moines, chairman of the Committee of Arrangements, reported the hours for opening the sessions as 9 A. M., 2 P. M., and 8 P. M. Adopted.

The Committee of Arrangements, reporting through its chairman from time to time during the sessions, declared the following gentlemen as having proper credentials as delegates, and recommended that they be elected permanent members.

On motion, they were so elected, and signed the constitution.

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Appanoose County Medical Society — R. Stephenson, Centerville.

Botna Valley Medical Society — C. H. McClees, Marne; T. B. Beatty, Anita; J. D. Holmes, Audubon; W. C. Egan, Atlantic.

Buchanan County Medical Society — W. G. Dwyer, Independence.

Central District Medical Association — Charles Enfield, Jefferson; G. D. Rowe and D. N. De Tarr, Boone.

Clinton County Medical Society — A. M. Cowden, Elvira.

Council Bluffs Medical Society — H. W. Caufman, Malvern.

Des Moines Medical Society — F. E. Cruttenden and A. L. Worden, Des Moines.

Des Moines Valley Medical Society — H. M. Farr, Mt. Pleasant.

Dubuque County Medical Society — J. H. Greene, Dubuque.

Guthrie District Medical Society — E. P. Maulsby, Casey; J. M. Payne, Bagley; H. C. Le Roy, Stuart; E. G. Elliott, Earlham.

Harrison County Medical Society — S. J. Patterson and C. F. Clark, Dunlap.

Iowa and Illinois Central District Medical Association — A. W. Cantwell, Davenport.

Iowa County Medical Society — D. C. Brockman, Marengo; J. B. Carder and F. H. Boucher, Brooklyn.

Iowa Union Medical Society — N. Jasper Jones, Shelby; G. E. Crawford, Cedar Rapids.

Independent District Medical Society — F. C. Jones, Herndon.

Jasper County Medical Society — G. P. Clark, Prairie City.

Jefferson County Medical Society — S. F. Hammond, C. Snook, and D. H. Stever, Fairfield.

Keokuk County Medical Society — W. T. Eckley, Harper; T. J. Maxwell and O. P. McDonald, Keokuk.

Louisa County Medical Society — D. W. Overholt, Columbus Junction.

Madison County Medical Society — F. W. Ewing, Winterset.

Marion County Medical Society — William E. Wright, Knoxville.

Mitchell County Medical Society — A. D. Bundy, St. Ansgar; D. S. Brainard, Staceyville.

Muscatine Medical Society — A. R. Leith and Thomas Sherwood, Wilton; S. Merrill, West Liberty; C. E. Ruth, Atalissa; E. B. Bills, Durant.

North Iowa Medical Society — P. M. Jewell, Ossian; W. H. Jones, Forest City.

Physicians and Surgeons of Muscatine — S. M. Cobb and Cal. W. Smith, Muscatine.

Polk County Medical Society — I. P. Brubaker, H. C. Eschback, O. D. Benson, Azuba D. King, and D. W. Finlayson, Des Moines; B. B. Gwyer Grimes; W. H. Booth, Altoona; E. W. Kearby, Elkhart.

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Scott County Medical Society — W. L. Allen, Davenport.

Sioux City Medical Society — O. H. Ainsworth, Sloan.

South-western Iowa Medical Association — J. D. R. Reynolds, Creston.

Taylor County Medical Society — J. W. Guthrie, Bedford.

Wapello County Medical Society — A. M. Stark, Ottumwa.

Warren County Medical Society — C. C. Chapman, Summerset; A. J. Applegate, Indianola; O. Porterfield, Spring Hill.

Washington County Medical Society — H. T. McLaughlin, Washington.

PERMANENT MEMBERS.

The following permanent members were in attendance and registered:

Ira K. Gardner, New Hampton.
S. E. Robinson, West Union.
G. O. Morgridge, Muscatine.
E. L. Baker, Indianola.
Robert McNutt, Des Moines.
W. F. Peck, Davenport.
C. M. Hobby, Iowa City.
L. J. Adair, Anamosa.
W. C. Davis, Indianola.
D. S. Grossman, Dallas Center.
W. M. Park, Indianola.
B. H. Criley, Dallas Center.
J. D. McCleary, Indianola.
E. H. King, West Liberty.
D. W. Crouse, Waterloo.
A. G. Field, Des Moines.
George F. Jenkins, Keokuk.
J. D. Holmes, Audubon.
E. H. Hazen, Davenport.
G. H. Hill, Independence.
C. Brown, Sac City.
D. C. Brice, De Soto.
W. F. Randolph, Bedford.
G. A. Meredith, Ames.
S. N. Pierce, Cedar Falls.
W. F. Graham, Atlantic.
J. S. Watts, Millersburg.
J. E. Sansom, Anita.
James T. Priestley, Des Moines.
D. W. Smouse, Des Moines.
M. G. Sloan, Dexter.
D. B. Hillis, Keokuk.
Edith M. Gould, Des Moines.
W. S. Robertson, Muscatine.
D. Scofield, Washington.
W. D. Middleton, Davenport.
S. B. Thrall, Ottumwa.
William Corns, Tama City.
D. S. Fairchild, Ames.
J. M. Knott, Sioux City.
S. B. Chase, Osage.
J. W. Cokenower, Des Moines.
Lewis Schooler, Des Moines.
W. S. Schermerhorn, Jefferson.
R. W. Miller, Menlo.
G. R. Skinner, Cedar Rapids.
William Watson, Dubuque.
J. C. Hinsey, Ottumwa.
A. W. McClure, Mt. Pleasant.
F. M. Ward, Marshalltown.
J. W. Lagrange, Marion.
J. W. Finarty, Dallas.
E. W. Clark, Grinnell.
R. A. Patchen, Des Moines.
J. A. Scroggs, Keokuk.
J. F. Cloughley, Audubon.
O. E. Evans, Gowrie.
Rosa Martin Upson, Marshalltown.
H. A. Gilman, Mt. Pleasant.
Alexander Guthrie, Pella.
C. C. Griffin, Vinton.
M. Meredith, Vinton.
G. B. Ward, Fairbank.
J. Williamson, Ottumwa.

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W. W. Hale, Des Moines.
L. J. Alleman, Boone.
G. P. Hanawalt, Des Moines.
J. O. Skinner, Polk City.
C. W. De Mott, Shelby.
L. H. Surber, Cool.
J. A. Blanchard, Des Moines.
D. C. Brookings, Woodward.
W. H. Ward, Des Moines.
J. W. Adams, Des Moines.
J. E. Howe, Greenfield.
Joseph A. Treat, Stuart.
Thomas S. Parr, Indianola.
A. C. Simonton, Des Moines.
J. I. Wakefield, Des Moines.
H. D. Ensign, Boone.
T. J. Caldwell, Adel.
A. A. Deering, Boone.
E. I. Hall, Letts.
S. S. Lytle, Iowa City.
C. C. Smead, Sully.
G. H. Grimmell, Jefferson.
C. M. Drumeller, Panora.
J. F. Kennedy, Des Moines.
D. M. Wick, New Hartford.
L. P. Fitch, Charles City.
J. H. Nicol, Lacona.
C. H. Rawson, Des Moines.
J. W. McKee, Des Moines.
O. T. Gillett, Iowa City.
H. R. Page, Des Moines.
J. W. McDowell, Des Moines.
C. M. Colvin, Des Moines.
Jennie McCowen, Davenport.
T. Roberts, St. Charles.
L. S. Groves, Afton.
W. H. Archer, Bear Grove.
H. Ristine, Cedar Rapids.
H. M. Dean, Muscatine.
S. A. Spilman, Ottumwa.
H. C. Huntsman, Oskaloosa.
H. W. Miser, Lovilia.
W. H. Christie, Creston.
M. A. Dashiell, Hartford.
J. R. Garrett, Newton.
H. R. Layton, Leon.
P. S. Moser, Boone.
J. B. Wilson, Creston.
H. E. Hunter, Newton.
R. J. Farquharson, Des Moines.
D. H. Worthington, Fairfield.
S. Pangburn, Perry.
H. S. Farr, Madrid.
J. W. Mitchell, Knoxville.
R. J. Hart, Low Moor.
H. B. Young, Burlington.
James Lonsdale, Stuart.
H. Pritchard, Des Moines.
S. Druett, Marysville.

OFFICERS PRESENT.

The following officers were present and assumed their respective duties:

President - S. E. Robinson, West Union.
First Vice-President - H. C. Huntsman, Oskaloosa.
Second Vice-President — D. W. Crouse, Waterloo.
Secretary - A. A. Deering, Boone.
Assistant Secretary — A. C. Simonton, Des Moines.
Treasurer — G. R. Skinner, Cedar Rapids.

Cards giving the cause of absence of several members were read and placed on file.

Robert McNutt, Des Moines, offered the following resolution:

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WHEREAS, Regular annual reports, from every section of this State, of such diseases as may have occurred during the year, together with the topography and flora of each locality, would be of deep interest, not only to our profession, but to science generally; and

WHEREAS, A committee consisting of one member from each congressional district should be appointed, whose duty it would be to furnish a report of his district to the chairman of his committee, and from all the reports the chairman to furnish a condensed report, to be presented to this Society at its next annual meeting; therefore,

Resolved, That the President of this Society is hereby authorized to appoint a Committee on the Section of Nosological Statistics, consisting of one member from each congressional district, whose duty it shall be to formulate and present to this Society a report embracing statistics of all diseases that may have occurred in each section during the year, with a sketch of the topography and flora of the localities where such ailments prevailed.

C. M. Hobby, Iowa City, moved the appointment of a committee of three to whom this resolution and all similar matters be referred. Carried.

The President appointed C. M. Hobby, G. H. Hill, and A. G. Field.

J. F. Kennedy, Des Moines, introduced an amendment to Section 4, Article V. of the Constitution, proposing to strike out the words "keep a record of meetings," occurring after the words "The Assistant Secretary shall."

The President read a letter from R. J. Farquharson, Secretary of the State Board of Health, inviting the members to visit, at their convenience, the rooms of the Board of Health.

On motion of A. C. Simonton, Des Moines, J. F. Kennedy was added to the Committee of Arrangements.

On motion, the Society adjourned to meet at 2 o'clock P. M.

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FIRST DAY—AFTERNOON SESSION.

The Society was called to order at 2 o'clock P. M. by the President.

Vice-President D. W. Crouse, Waterloo, took the chair and introduced the President, S. E. Robinson, who delivered the following annual address:

PRESIDENT'S ADDRESS.

GENTLEMEN OF THE IOWA STATE MEDICAL SOCIETY:

I feel it to be my first duty to express to you my appreciation of the high honor you have conferred upon me in electing me to preside over your deliberations at this, the thirty-second annual meeting of this Society. It is a compliment which I appreciate as one of the greatest I could receive. I feel the obligations to the Society greater for reason of the fact that it gives me little power to confer especial favors upon any individual member of the Society; and no one can have hoped that my election would give him personal benefit. I can only tender my thanks to the Society, and promise my best effort for the profit and pleasure of the members at this session. I desire to crave your indulgence for errors that I shall probably commit, begging you to remember that parliamentary law has not been a prominent feature in the curriculum of my recent studies; nor do I believe that a strict application of parliamentary rules is necessary here, where each and every one belongs to the same party, working in the one direction of individual and collective improvement in our profession and the upbuilding and strengthening of our Society.

I desire for a few moments to call your attention to the present condition, socially and ethically, of the medical profession in the State, as observed from my standpoint as a country practitioner; and, while I believe this to be quite a pleasing condition in both these particulars, I may suggest something in the way of further improvement. It is, perhaps, more difficult for one to judge of present conditions and tendencies of a class of which he is an integral part, and of its needs, than of any other question which he could consider. One could easily

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judge of the condition of a class or profession in the past if he were furnished with the history of its surroundings; but our judgment is liable to be warped by personal interests when we come to investigate present conditions of a class to which we belong.

There seems to me to be good reason for satisfaction with the social standing of our fraternity. We here in Iowa have no especial ranks or grades in society to strive for or boast of; but we have in every community varying degrees of education and intellectual attainment, and the honest, intelligent physician everywhere, in city and country, finds himself associated with the best intelligence, and a co-worker and peer of the best-educated in every community — a welcome visitor, in health as well as in sickness, in every grade of society in the community in which he lives. But we find that nearly every locality is able to judge between the intelligent, educated physician and the ignorant, uneducated pretender who may, in some unaccountable way, have attained to the title of *Doctor*. The first is usually a leader in society, looked up to as an adviser and counsellor in educational, literary, and social affairs; while the latter has no place, except as a hanger-on, being tolerated, but not desired, in any neighborhood in the State. And yet, by reason of legislation in some of our neighboring States, tending to protect their citizens from this kind of impostors, we have more than our just proportion of this class of parasites subsisting upon the uninformed and unfortunate; and I believe it to be the duty of this Society, and of the individual members of the profession, to renew and redouble the effort recently made to secure such legislation as shall be a partial protection, at least, to the people of the State, from the plundering by the soulless villains who are ready to prey upon the credulity of the poor and suffering, and relieve our State from the odium that attaches to it as the cess-pool for the degenerate material thrown off by the profession of neighboring States by the help of good legislation.

There is probably no man in any community who has, or could have, greater political influence than the practising physician. He comes in contact with every class in the community — the educated and the ignorant, the rich and the poor — and with all he stands in great respect, every one esteeming his judgment and highly respecting his opinions. Yet there is perhaps no class of equal number who really exercise so little political influence in matters of which they are

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recognized to be the most thoroughly informed, and upon which they are so nearly agreed. There must be some reason for this, and for the common outside prejudice that exists, which becomes apparent so soon as we, as physicians, urge the consideration by our legislators of any matter having any relation to our profession. Just so soon as we were agreed upon a law which we could recommend to the Legislature and to the people, as furnishing them some protection and tending to secure for them better medical service (and this was accomplished without difficulty when the matter was first considered), then we heard from every school-district in the State a cry that "the *doctors* are trying to secure protection; they want a law enacted that will give them better business and increase their incomes." Now, why was this so, and why did the people and the law-makers misjudge our motives? They will give us credit for honesty and integrity in other matters, why not in this? I think it may be due, in some measure at least, to our professional sensitiveness. We all know that professional benefits were not thought of by the committee that gave especial consideration to the question of medical legislation, and we all, with one accord, said so; but the law has not yet been enacted. The majority of the profession ceased to actively use their influence in that direction, lest their motives continue to be misjudged, and the few who continued to urge it could only fail of success. Suppose it were true that we were in need of protective law, or would be benefited by the measures proposed and desired, is there any disgrace attached to that? Do not men engaged in every other legitimate business desire and work for such measures as shall enable them to pleasantly and profitably pursue their several avocations — the farmer and the mechanic, the merchant and the manufacturer, and all the rest? Then why need we explain, deny, and apologize when such measures are proposed, if they be construed to work for our benefit and make our profession more profitable and its practise more pleasant, even though these measures were conceived with no such end in view?

I therefore believe that it is advisable that this Society urge upon its members, and the members of the profession throughout the State, that they use their influence with their legislators, and in the several communities in which they live, in favor of the enactment by our State Legislature of such a law as shall give protection to the citizens from impostors in medical practise; and esteem it no disgrace if it operates to pro-

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tect the business of their profession at the same time that it saves their patrons' purses, their health, and often their lives.

In regard to the ethics of the profession in the State, I cannot do better than quote a paragraph or two from a paper read by Dr. N. S. Davis at the meeting of the Association of Medical Editors, held in Cleveland in 1883, upon the "Present Status and Future Tendencies of the Medical Profession in the United States," and published in the *Journal of the American Medical Association* in July of last year. He says, speaking of the ethical spirit and moral tone of the profession:

"I think it is not only equal to that of any of the members of the same profession in any of the other civilized countries of the world, but in many respects it may be regarded as superior. * * * It is probable that another equally numerous class of men cannot be found who more rigidly and tenaciously adhere to those rules of an ethical nature which are calculated to protect and sustain each other on the one hand, and still more effectually to protect the interest and welfare of their patients upon the other, than is done by the profession in this country."

I believe this to be as true of the profession of Iowa as of the profession anywhere, and perhaps more exactly true than of the United States as a whole. The rule to foster and protect the interests of each other as members of the same profession is, with few exceptions, observed strictly throughout the ranks of the regular profession everywhere in the State; and there is, too, a high moral tone everywhere marked, which not only nominally frowns upon all criminal proceedings that grow out of the conduct of the vicious members of the general community, but really has a restraining effect upon some forms of vice greater than could be secured by any penal legislation. The rule to avoid divulging the secrets obtained by professional intercourse with families and patients is enforced in this State by statute law already, as it should be, and we find none of the profession disposed to avoid the law or in danger of incurring its penalties; though I believe this law not quite perfect, as I think it does not inflict or prescribe a penalty for transgressions out of, as well as in, court. I believe it is greatly to our credit that there is in this State a very small minority of the regular profession, whether affiliated with this Society or not, who favor a revision of the Code of Medical Ethics in such a way as to make its rules any less

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stringent; very few who would desire to so amend the Code as to enable them, without transgressing its rules, to exchange honorable professional conduct for discreditable behavior, even though they might occasionally thereby gain an unearned fee, and possibly secure an unprofessional friend. I would suggest that, as there are still some in other States who desire abolition of the Code, or modification of its rules in the direction of laxity, this Society reiterate the fealty of its members to the *old* Code, and urge its delegates to the American Medical Association to oppose any modification which shall tend to make its rules less strict.

The present pleasing condition of the profession in the State, socially and professionally, is largely due to the influence of society organizations, which tend to produce continued harmony within its ranks and higher attainments by its members; and, in view of this, it is well that the membership in this Society, as the parent society in the State, continue to be, as it has been in the past, a matter of solicitude, and should very properly continue to interest us. While I feel that we should be very careful not to interpose anything that would operate as a bar to the continued affiliation of educated, honest, competent physicians, yet the admission to permanent membership should be so carefully guarded as to save the Society from the chagrin and annoyance consequent upon the admission of uneducated or dishonest men, as far as possible. I would certainly advise that all permanent members should enter through the door of local auxiliary societies, district or county. But this Society should so supervise these local organizations as to be sure of the material which may constitute their membership. This, I think, can easily be done by admitting as auxiliary only such societies as shall make application through the Secretary of this Society, transmitting a copy of their organization, or at least their requirements for membership, these to be referred to our judicial council, or Committee upon Ethics; and the local society shall not be entitled to representation, or its members be able to secure permanent membership, in this Society until the said committee shall report favorably upon its organization and requirements for membership. At present I can see no reason why any number of physicians cannot meet together or in any way agree to call themselves a medical society, and immediately their delegates are made permanent members of this Society; and we have no means of ridding ourselves of objectionable men until, by

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tedious trial and vexatious inquiry, we shall have proved them to be not such men as our constitution prescribes shall constitute our membership. And yet they are, and have been, regularly received. I am not able to quite understand how the character of improper individuals, who come to us with credentials from irregularly or imperfectly organized societies, will be improved, and they be better fitted for membership here, by coming twice or thrice, or more, with the same endorsement and vouchers. I believe this Society should make it desirable, and not difficult, for every good, regularly educated physician in the State to seek to obtain and continue membership in it, and should encourage and promote the formation of auxiliary organizations throughout the State; but it should guard and protect itself and the local societies by looking after the standing of every member admitted, and by pledging local societies that, after they are properly organized, none shall be admitted except through the door they open, and by the approval of their censors. I presume that every physician connected with a State institution of any kind, and every officer of any hospital in the State, is a thoroughly competent and well-educated physician, and is affiliated with a properly organized local society; but so long as there is no medical supervision of the competency of medical officers of these State institutions prior to their appointment, which is made by officers responsible only to the political party in power — men who are probably entirely honest in their endeavor to secure the best skill for these offices, yet whose education and previous occupation have not been such as to give them any qualifications to judge of the professional attainments of their appointees — I would therefore advise that in future no State institution be entitled to such representation as will secure to its delegates more than annual membership. It can work no inconvenience to officers of hospitals and similar institutions, as they can easily secure permanent membership through their local societies; and it may possibly, in some cases, stimulate greater interest in local organization, and at the same time it makes *all* who seek membership here subject their qualifications to scrutiny by those who are responsible here and to the profession.

I would suggest, as a further stimulant for auxiliary societies, that they be asked and expected to give, and this Society provide for the reception of, reports by their delegates of the work done by their society during the previous year, giving

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the number of meetings held, average attendance, papers read, subjects discussed, etc.; and any society whose work simply amounted to feeble cohesion and the appointment of delegates, would be looked upon with suspicion here.

I wish to commend the present plan of determining the place of meeting for future sessions of the Society so as to accommodate as great a number of the profession as possible by bringing it every few years within easy reach of all. While changing the place of meeting every year may have the effect of reducing, in some degree, the interest of the few, yet it brings the benefits of the Society to all, and is of greater benefit to the profession of the State as a whole, and, in this, better accomplishes the ends for which the Society was organized, and follows the example of the American Medical Association, and the practice which has been found to do the greatest good to the greatest number.

It has not appeared to me to be any part of my duty at this time to review medical progress during the period of my office, or to make any suggestions as to the demands of medical science in general. Competent members of this Society have been appointed to the several committees having this work, and have expressed a ready willingness to attend to the duty, which I feel assured they will do better and more profitably to the Society than I possibly could. I will urge, however, the creation of another committee, for investigation and future reports to this Society upon a subject that is of growing importance to the profession and to the State. The general practitioner is frequently not well informed upon that department of medicine embraced under the general term of mental and nervous diseases. I would recommend that the President of the Society be authorized to appoint, in addition to the committees already provided for, a Committee on Nervous and Mental Diseases, Insanity and Idiocy. While insane men are not discovered to be of unsound mind until they have been guilty of homicide or other grave crimes that their diseased brain drives them into, and idiot children, that are quite capable of being educated to be self-sustaining, are allowed to grow to adult age without any training, and remain for life charges upon their friends or the State, I think this branch of medicine equal in importance with any other; and its investigation and study should be stimulated continually.

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And now, in closing, I would again thank you for the honor you have conferred upon me, and for the assistance and hearty co-operation in the discharge of the unusual duties that have devolved upon me as your presiding officer. I have received willing and ready response from officers and members generally whenever I have asked advice or professional work for the advancement of the interest of the Society; and for these many kindnesses I am under lasting obligations to each and all. I trust that the session now opening shall equal or surpass any previous session in profit and pleasure to the members in attendance, and hope and expect that our deliberations will be marked by that courtesy and kindness to each other which is characteristic of our noble profession.

T. J. Caldwell moved that a committee of three be appointed to whom the President's Address be referred, of which J. D. McCleary shall be chairman. Carried.

The chair appointed J. D. McCleary, G. H. Hill, and T. J. Caldwell.

Cards explaining absence and expressing regrets were read from Drs. E. F. Clapp, Iowa City; H. C. Huntsman, Oskaloosa; and J. W. Smith, Charles City.

SECTION ON MEDICINE.

S. B. Chase, Osage, chairman of the Section on Medicine, read a paper on "Pulmonary Apoplexy;" which, on motion, was received, discussed by Drs. Elliott and Jenkins, and, on motion of Dr. Crouse, was referred to the Committee on Publication.

Thomas Siveter, Salem, eighty-five years of age — one of the early members of the Society, as well as its fourth President, was invited to a seat by the President and elected a member by invitation.

The Secretary read a telegraphic greeting from the Missouri State Medical Society, now in session.

On motion of S. B. Thrall, the Secretary was directed to return a suitable reply.

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G. E. Crawford, Cedar Rapids, read a paper entitled "Acute Catarrhal-Pneumonia — a Primary Disease;" which was received, discussed by G. F. Jenkins, and referred to the Committee on Publication.

Benj. McCluer, Dubuque, referring briefly to measles, called attention to the strong tendency to death from exhaustion, and to the wearing out of the respiratory organs from rapid breathing, and recommended strychnia as highly beneficial under such circumstances.

J. H. Greene, Dubuque, presented a paper on "Contusion of the Brain from Contrecoup," presenting a case in illustration of the subject. The paper was received, discussed by Dr. Peck and others, and referred to the Committee on Publication.

W. D. Middleton, Davenport, read a paper entitled "Glucose," briefly describing its manufacture and giving some results of its use in indigestion. The paper was received. E. H. Hazen, Davenport, reported good results in a case wherein he had used it. The paper was referred to the Committee on Publication.

D. W. Smouse, Des Moines, presented a paper detailing a case of "Locomotor Ataxia;" which was received and referred as the others.

The Secretary read a telegram conveying greetings from the Louisiana State Medical Society; to which the Secretary was authorized to reply.

SECRETARY'S REPORT.

The Secretary made the following report for the year, which was received and referred to the Committee on Finance:

To the Officers and Members of the Iowa State Medical Society — Gentlemen:

Your Secretary would respectfully submit the following report of his office during the past year:

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Since the adjournment of the last meeting, the following delegates have been appointed:

To the Nebraska State Medical Society - - D. Macrae, Council Bluffs; G. P. Hanawalt, Des Moines.

To the Wisconsin State Medical Society, September 4th, 1883 - - G. M. Staples, Dubuque; H. C. Bulis, Decorah.

The following members were appointed delegates to the American Medical Association, May 6th to 9th, 1884:

A. W. McClure, Mt. Pleasant.
H. A. Gilman, Mt. Pleasant.
J. A. Scroggs, Keokuk.
D. H. Worthington, Fairfield.
H. B. Ransom, Burlington.
W. S. Robertson, Muscatine.
W. F. Peck, Davenport.
A. Reynolds, Clinton.
E. F. Clapp, Iowa City.
O. T. Gillett, Iowa City.
A. B. Reed, Cedar Rapids.
H. Ristine, Cedar Rapids.
William Boys, Waverly.
Daniel Langan, De Witt.
H. L. Getz, Marshalltown.
L. J. Alleman, Boone.
S. B. Thrall, Ottumwa.
A. O. Williams, Ottumwa.
J. W. Mitchell, Knoxville.
H. C. Huntsman, Oskaloosa.
H. W. Hart, Council Bluffs.
C. Bosbyshell, Glenwood.
J. M. Emmert, Atlantic.
Ira L. Welch, Humboldt.
H. G. Ristine, Fort Dodge.
A. B. Brackett, Goldfield.
A. A. Rawson, Corning.
E. M. Reynolds, Centerville.
J. Roberts, Osceola.
W. H. Christie, Creston.
L. C. Swift, Des Moines.
W. H. Ward, Des Moines.
G. P. Hanawalt, Des Moines.
E. W. Clark, Grinnell.
J. D. McCleary, Indianola.
B. A. Guyton, Jr., Sioux City.
G. W. Beggs, Sioux City.
J. M. Knott, Sioux City.
E. C. Heilman, Ida Grove.
G. H. Hill, Independence.
D. W. Crouse, Waterloo.
William Watson, Dubuque.
G. M. Staples, Dubuque.
L. J. Adair, Anamosa.
S. B. Chase, Osage.
C. C. Bradley, Manchester.
Ira K. Gardner, New Hampton.
H. C. Bulis, Decorah.
Jennie McCowen, Davenport.
J. S. Roome, Calmar.
J. D. McVay, Lake City.
J. A. Blanchard, Des Moines.

Many of the above delegates failing to attend, the following members were appointed alternates by the President and Secretary, who were in attendance:

J. L. Whitley, Osage.
S. T. Goodman, Maxwell.
H. Young, Manson.
C. M. Hobby, Iowa City.
James Carson, Mt. Vernon.
G. D. Darnall, West Union.
T. M. Hedges, Grinnell.
J. W. Young, Bloomfield.
R. S. Brice, Keota.
A. Hobart, Clinton.
H. O. Bates, Millersburg.
R. S. Rice, Smithland.

Since the last meeting, the following orders have been drawn by me on the Treasurer:

June 21, 1883,	Voucher No. 103, for postage, expressage, and supplies for Secretary's office	$25 00
March 20, 1884,	Voucher No. 104, for Secretary's supplies	20 00
April 21, "	" " 105, " printing, postage, and supplies	15 00
		$60 00

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Total number Permanent Members..... 373
Corresponding Members..... 3

Respectfully submitted,
A. A. DEERING, *Secretary.*

On motion, the Society adjourned.

FIRST DAY—EVENING SESSION.

The Society was called to order at 8 o'clock P. M. by the President.

Prof. Leighton, on being introduced to the Society by the President, illustrated, in a practical and interesting manner, some important modifications in the construction and use of the microscope.

On motion of S. B. Chase, a vote of thanks was tendered Prof. Leighton.

SECTION ON HYGIENE AND SANITARY SCIENCE.

R. J. Farquharson, Des Moines, Secretary of the State Board of Health and chairman of the Section on Hygiene and Sanitary Science, read an interesting report showing the advancement in sanitary science during the past year.

On motion of L. Schooler, the paper was received.

Benj. McCluer asked Dr. Farquharson what disinfectant he would recommend for house drains, etc.

The Doctor replied, "Copperas."

The paper, on motion, was referred to the Committee on Publication.

A. W. Cantwell, Davenport, presented a brief history of the Davenport Board of Health, from its organization in 1871 to the present time; which was duly received and referred to the Committee on Publication.

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Robert McNutt, Des Moines, read a paper on "Ethnic Forces;" which, on motion, was received.

On motion, the Society adjourned.

SECOND DAY — MORNING SESSION.

The meeting was called to order at 9 o'clock A. M., President Robinson in the chair.

Dr. Hanawalt, chairman of the Committee of Arrangements, introduced as duly accredited delegates from the Nebraska State Medical Society, James Carter, of Omaha, and A. S. von Mansfelde, Ashland, Secretary of the Nebraska State Medical Society.

On motion, they were received, and Dr. von Mansfelde briefly addressed the Society.

Dr. Carter presented the following resolutions, adopted by the Nebraska State Medical Society, and suggested their adoption by our Society, with the view of establishing "such fraternal relations as must prove of inestimable advantage:"

Resolved, That the Committee on Foreign Correspondence shall consist of one duly accredited representative (a member of this Society) for each State and Territorial medical society. They shall receive and review the transactions of the societies which they represent, and through their chairman, the Corresponding Secretary, present annually a report of the advances in medicine made by said societies. They shall also report such other matters as their societies may wish to communicate to the Nebraska State Medical Society.

Duties of Representatives of Foreign Societies.

It shall be the duty of the representative of any foreign society to communicate all advances in matters medical and governmental made by said society in the year just past, as well as all matters, of whatever kind, his society may wish to be

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brought to the notice of the Nebraska State Medical Society, to the Corresponding Secretary of the Society, as chairman of the committee. And, finally, the representative shall guard, to the best of his ability, the interests of his society, where and whensoever it is demanded.

Credentials of Representatives.

Representatives shall hold their credentials, duly signed by the President and Secretary of the society to whom they stand accredited; which credentials shall be forfeited whenever the representative fails to comply with the requirements of his office.

A. G. Field, Des Moines, moved that the resolutions be referred to a committee of three, with instructions to report at a subsequent session. Carried, and the President appointed A. G. Field, George F. Jenkins, and William Watson.

E. W. Clark, Grinnell, chairman of Committee on Finance, submitted the following report on the report of the Treasurer as presented at last annual meeting:

G. R. Skinner, *Treasurer,*

In account with the Iowa State Medical Society:

To cash on hand	$825 80
" United States bond	500 00
" interest on bond	20
" amount received on dues	369 00
	$1,695 00
By cash paid on vouchers	310 00
Balance	$1,385 00

On motion, the report was received and placed on file.

A. C. Simonton moved that Dr. McNutt's paper be referred to the Committee on Publication.

The propriety of such reference was discussed by Drs. Field, Watson, and Schooler; and, on motion of Dr. Hillis, Dr. Simonton's motion was laid on the table.

On motion of Dr. Field, the paper was respectfully returned to the author, with permission to publish in some scientific magazine, as being hardly sufficiently relevant to medicine to justify its publication in our transactions.

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W. S. Robertson gave a short verbal report upon "School Hygiene," urging the better construction of school-houses with reference to light and ventilation, and deprecated the cramming process of education so prevalent.

A lively and interesting discussion arose, participated in by Drs. Chase, Williamson, McNutt, Gilman, Jenkins, von Mansfelde, Hillis, McClure, and Clark.

On motion of Dr. Watson, a committee was appointed, consisting of William Watson, E. H. Hazen, G. F. Jenkins, G. H. Hill, and H. A. Gilman, to whom was referred the subject of Dr. Robertson's report, with instructions to report at some session during the present meeting.

S. B. Thrall, Ottumwa, read a paper on "Boards of Health and Contagious Diseases;" which was discussed by Drs. Chase, Hazen, Simonton, Jenkins, Hillis, Kennedy, Thrall, von Mansfelde, Patchen, and C. H. Rawson.

On motion of Dr. Maxwell, the paper was referred to the Committee on Publication.

On motion, the members representing the various congressional districts were instructed to elect the Committee on Nominations immediately after adjourning.

On motion, the Society adjourned.

SECOND DAY—AFTERNOON SESSION.

The meeting was called together at 2 o'clock P. M. by the President.

The Secretary presented the following bills:

Mills & Company	$9 00
Iowa State Register	4 80
Redhead & Wellslager	3 00

On motion of H. C. Hinsey, the bills were allowed and ordered paid.

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The Committee on Finance reported that they had audited and approved so much of the Secretary's report of yesterday as referred to finances.

Thomas Siveter, Salem, reported a case of congenital malformation.

The Secretary announced the following gentlemen as constituting the Nominating Committee:

First District, A. W. McClure; Second District, W. D. Middleton; Third District, D. W. Crouse; Fourth District, S. B. Chase; Fifth District, C. M. Hobby; Sixth District, J. R. Gorrell; Seventh District, E. L. Baker; Eighth District, W. H. Christie; Ninth District, C. W. De Motte; Tenth District, P. S. Moser; Eleventh District, G. H. Grimmell.

SECTION ON SURGERY.

The report of the committee was called, and the chairman, because of an accident, was reported absent.

M. G. Sloan, Dexter, reported a case of peri-typhlitis; which was received and referred to the Committee on Publication.

G. P. Hanawalt, Des Moines, presented a paper on "Bichloride of Mercury in Surgery;" which, on motion, was received, discussed by Drs. Peck, von Mansfelde, and Guthrie, and referred to the Committee on Publication.

D. C. Brockman, Marengo, read a paper on "Improved Jacket Braces for the Treatment of Spinal Curvature;" which was received and referred as the preceding.

E. W. Clark, Grinnell, presented a paper detailing a case of stricture of the æsophagus with dilatation. The paper, after being received, was discussed by Drs. Peck and Patchen, and by Dr. James Carter, of Omaha, and was referred to the Committee on Publication.

A paper on "Nerve Stretching," with a case in illustration, was read by H. Ristine, Cedar Rapids. It was received, discussed by Drs. Brockman, Peck, and Ristine, and referred as the previous paper.

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R. J. Farquharson, Des Moines, presented a paper upon "Leprosy;" which was received and referred to the Committee on Publication.

C. M. Hobby, Iowa City, read a paper entitled "Malignant Degeneration of Benign Tumors;" which was, after being received, discussed by Drs. McNutt, von Mansfelde, and Hobby, and also referred to the Committee on Publication.

SECTION ON OBSTETRICS AND GYNECOLOGY.

The chairman of this section, J. Williamson, Ottumwa, reviewed the progress made in Obstetrics and Gynecology during the year. The report was duly received, and discussed by Drs. McNutt, Hinsey, Scofield, Huntsman, Christie, Jenkins, Brookings, Watson, McClure of Mt. Pleasant, and Thrall.

Pending the discussion, the Society adjourned.

SECOND DAY—EVENING SESSION.

The meeting was called to order by the President at 8 o'clock P. M.

G. P. Hanawalt, chairman of the Committee of Arrangements, on behalf of the committee, presented the following resolutions, which, on motion, were adopted:

Resolved, That the Secretary be and is hereby authorized to employ such clerical help as he may need in doing his Society work during the coming year; and that he is hereby authorized to draw on the Treasurer for an amount sufficient to pay for the same.

Resolved, That the Secretary is hereby authorized to draw on the treasury of the Society for the sum of $50, to be paid to the Treasurer, Dr. G. R. Skinner.

The following bill was allowed and ordered paid:

Expenses of Prof. Leighton in attending present session of Society.... $5.50

Payment recommended by A. G. Field, J. Williamson, W. D. Middleton, and E. W. Clark.

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R. A. Patchen, Des Moines, introduced a patient illustrating a new application of a splint.

D. Scofield offered the following resolutions:

Resolved, That this Society offer an annual prize for the best essay embracing original thought and investigation, to be awarded by the Committee on Publication, under such rules and regulations as they shall direct; and that such essay, when received, shall become the property of the Society.

Resolved, That the sum of $200 shall be placed to the credit of the Committee on Publication for this purpose for the ensuing year.

L. F. Fitch, Charles City, moved to amend by limiting the competition for the prize to the members of this Society. Carried.

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The resolutions, as amended, were adopted.

The committee appointed on Dr. McNutt's resolutions reported as follows:

Your committee to whom was referred the within resolutions report as follows:

The information of a nosological character sought is now being collected by the State Board of Health. The geological survey covers the topography, and the work done at the Agricultural College the flora of the State, so that any supplemental work in the manner suggested would at present be of little value; and they recommend the resolutions be not adopted.

C. M. Hobby,
G. H. Hill,
A. G. Field, } *Committee.*

The report was adopted and the committee discharged.

The committee to whom was referred the President's Address made the following report:

We, your committee to whom was referred the annual address of President Robinson, beg leave to report that we have duly considered the suggestions therein made, and recommend,—

1st. That such changes be made in the mode of admission to membership in this Society as shall require delegates to

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furnish satisfactory evidence to the Committee of Arrangements that they are accredited by living, working local or county societies, organized as auxiliary to this Society.

2d. That the President of this Society be authorized to appoint an additional Committee on Nervous and Mental Diseases, Insanity, and Idiocy.

3d. That, for the purpose of aiding in the elevation of the standard of qualifications of physicians, we respectfully urge all members of this Society to refuse to receive persons as medical students who have not at least a good high-school education.

4th. That the vexed question of medical legislation be left, for the present, in the hands of the committee on that subject, confidently hoping that the time is near at hand when quacks and quackery shall be known no more in all our borders.

Respectfully submitted,

J. D. McCleary,
G. H. Hill,
T. J. Caldwell, } *Committee.*

The report, on motion, was received and discussed by Drs. Scofield, Watson, Hazen, Thrall, and, after adding the words "or district," to follow the words "or county," was adopted.

The following resolution was also adopted:

Resolved, That all auxiliary societies must make annual reports to the Secretary of the State Society at least one month prior to the meeting of the State Society, stating the number of its members.

The committee appointed to consider the propriety of adopting the resolutions of the Nebraska State Medical Society respecting the duties of delegates to neighboring societies, reported as follows:

The undersigned, your committee to whom was referred the communication from the Permanent Secretary of the Nebraska State Medical Society, relating to the formation of a Committee on Foreign Correspondence, would recommend the adoption of the following resolution:

Resolved, That a Standing Committee on Foreign Correspondence is hereby created. The name of Dr. James Carter,

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of Omaha, is suggested as representative in the Nebraska State Medical Society, and that he be furnished with credentials accordingly. Also that the Secretary suggest to the Secretary of the Nebraska State Medical Society that Dr. Donald Macrae, of Council Bluffs, would be a satisfactory selection to us as a representative of their society in the Iowa State Medical Society.

Respectfully submitted,

A. G. FIELD,
WM. WATSON,
GEO. F. JENKINS, } *Committee.*

The report was received and adopted.

The order of business, the consideration of Dr. Williamson's report on "Obstetrics and Gynecology," being called up, the subject was briefly discussed further by Dr. von Mansfelde, and referred to the Committee on Publication.

Dr. Williamson presented a paper on "Chloroform Anæsthesia in Retention of Urine," by B. McCluer, Dubuque; which, on motion, was read by title and referred to the Committee on Publication.

Jennie McCowen, Davenport, read a paper on "Insanity in Women;" which was received, and discussed by Dr. Dean.

The Society then adjourned, at 10:15 P. M.

THIRD DAY — MORNING SESSION.

The meeting was called to order at 9 A. M., President Robinson in the chair.

The chairman of the Committee of Arrangements offered the following resolution, which was duly received and adopted:

Resolved, That the Secretary, A. A. Deering, be paid one hundred dollars for his services during the past year.

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The following bills were presented, allowed, and ordered paid:

Rent of hall	$50 00
S. E. Robinson, President, postage, etc	10 00
G. R. Skinner, Treasurer, " "	3 50
A. A. Deering, printing, stationery, etc	8 30

D. Scofield offered the following amendment to the constitution, which, according to the rules, will lie over until the next annual meeting:

To Amend Section 3, as to Qualification, etc., of Members.

1. That no society, local or district, or of any other name, shall be entitled to representation in this Society by delegates from counties or territory having regular county medical organizations.

2. That no society shall be entitled to representation for any of its membership which is not truly qualified for membership in this, or which shall refuse or neglect to make out and transmit to the Secretary of this Society, between the first and last days of January of each year, a duly certified roster of its officers and members, its required qualification for membership, the number of regular and called meetings held during the past year, together with such other matter as shall enable this Society, through its Secretary and its Committee of Arrangements, to determine the status and true working condition of such subordinate society.

The paper of Jennie McCowen was taken up, and the discussion resumed by Drs. Hill, McNutt, Siveter, and Scofield; after which it was referred to the Committee on Publication.

An article on "Obstructive Dysmenorrhœa" was read by G. O. Morgridge, Muscatine; which was received and referred to the Committee on Publication.

R. Stephenson, Centerville, presented a paper on "Uterine Therapeutics;" which was received and referred as the above.

A bill of $1.50, in favor of the *State Leader*, was presented, allowed, and ordered paid.

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OTOLOGY AND OPHTHALMOLOGY.

H. B. Young, Burlington, read a report upon this section; which was duly received, and discussed by Drs. Hazen, Cruttenden, and Young.

The "Treatment of Obstructions of the Lachrymal Canal" was the subject of a paper presented by F. E. Cruttenden, Des Moines. It was, on motion, received, discussed by Drs. Young, Hazen, and Frick, and referred to the Committee on Publication.

I. K. Gardner, New Hampton, read a paper on "Paraldehyde, the new Hypnotic;" which was received and referred as the former paper.

On motion, the Society adjourned.

THIRD DAY — AFTERNOON SESSION.

The Society was called to order at 2 o'clock P. M., President Robinson in the chair.

On motion, the reading of the minutes of the sessions of this meeting was dispensed with.

The Treasurer submitted the following report for the year ending May 23d, 1884:

	Dr.	
To cash on hand, as per last report	$908 25	
" United States 4 per cent bond	500 00	
" cash from C. Deethan (delegate)	3 00	
" amount received from permanent members from May 31, 1883, to May 20, 1884	37 00	
" interest received on bond	20 00	
" amount received from members at this meeting	201 00	
" " " " 64 delegates	192 00	
		$1,861 25

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	Cr.	
By error in account	$ 4 00	
" Order No. 103	25 00	
" " " 104	20 00	
" " " 105	15 00	
" " " 106	9 00	
" " " 107	4 80	
" " " 108	3 00	
" " " 109	5 50	
" " " 110	50 00	
" " " 111	108 00	
" " " 112	10 00	
" " " 113	50 00	
" " " 114	3 50	
" " " 115	1 50	
	$ 309 60	
Cash and bonds on hand	1,551 65	
		$1,861 25

G. R. Skinner,
Treasurer Iowa State Medical Society.

On motion, the report was received and ordered placed on file.

The resolution presented by Dr. Kennedy at the first session, amending the constitution, having been read at each session, was called up and adopted.

The special committee appointed to report on school hygiene reported as follows:

The undersigned, your committee to whom was referred the subject of school hygiene, for the purpose of calling the attention of the State Board of Health to some of the more important defects in the present methods of educating children, often brought to our notice as physicians, respectfully submit the following report:

Whereas, The attention of this Society having been directed to the imperfections in the locations, construction, and arrangements of school buildings, also to the management of pupils by parent and teacher; therefore,

Resolved, That ample play-grounds, with proper shade and drainage, should be carefully considered by school boards.

Resolved, That school-houses should not be more than two stories in height; that the rooms should be supplied with

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abundant means for supplying fresh air and ventilation, so as to secure an equable temperature, about seventy degrees Fahrenheit; furthermore, that the stairs should be wide, but not steep, and the doors for egress should be large enough and open outward.

Resolved, That desks should be so arranged that the light will be introduced on the left side if possible, upon the right side or from behind, but never so as to strike pupils squarely in the face.

Resolved, That we condemn the practice of sending children to school before they are seven years of age; also, the tendency to the "cramming" process, which so often checks, rather than promotes, physical and mental development. Again, we urge greater discretion on the part of parents about putting children into school, in special cases, when the health is imperfect, or where the child is remarkably precocious.

Resolved, That this Society request the State Board of Health to take some action to bring this subject to the attention of the State Superintendent, the county superintendents, and boards of school directors.

Resolved, That the Board of Health should also make known the facts collected and tabulated regarding the increase of diseases of the eye in school life; also, impart instructions in the methods by which this organ is relieved of the excessive strain which modern civilization makes upon it.

WILLIAM WATSON,
H. A. GILMAN,
G. F. JENKINS,
G. H. HILL,
E. H. HAZEN,
} *Committee.*

On motion of Dr. McNutt, the report was received.

Dr. Kennedy moved it be received and adopted, and a copy sent to the State Board of Health. Carried.

H. C. Markham, Independence, presented a memorial sketch of the late Dr. B. H. Reynolds, of Manchester; which was received and referred to the Committee on Publication.

D. Scofield, Washington, moved that the Secretary be requested to ask the several members of the Committee on Necrology to secure proper memorial notices of deceased mem-

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bers in their respective districts, and forward them to the Secretary for the use of the Publication Committee. Carried.

The Committee on Nominations submitted the following report, which was received:

OFFICERS.

President — H. C. HUNTSMAN, Oskaloosa.
First Vice-President — H. B. RANSOM, Burlington.
Second Vice-President — C. C. GRIFFIN, Vinton.
Secretary — A. A. DEERING, Boone.
Assistant Secretary — G. E. CRAWFORD, Cedar Rapids.
Treasurer — G. R. SKINNER, Cedar Rapids.

COMMITTEES.

Of Arrangements.— H. Ristine and A. B. Reed, Cedar Rapids; C. M. Hobby, Iowa City; W. E. Egan, Atlantic; G. R. Henry, Burlington.

On Publication.— A. A. Deering, Boone; L. C. Swift, Des Moines; W. D. Middleton, Davenport; J. Williamson, Ottumwa; G. R. Skinner, Cedar Rapids.

On Ethics.— S. E. Robinson, West Union; J. D. McCleary, Indianola; A. W. McClure, Mt. Pleasant; P. S. Moser, Boone; W. S. Robertson, Muscatine.

On Necrology.— 1st District, J. A. Scroggs, Keokuk; 2d District, A. W. Cantwell, Davenport; 3d District, S. N. Pierce, Cedar Falls; 4th District, L. P. Fitch, Charles City; 5th District, W. C. Schultze, Marengo; 6th District, E. W. Clark, Grinnell; 7th District, W. H. Ward, Des Moines; 8th District, P. W. Lewellen, Clarinda; 9th District, J. D. Holmes, Audubon; 10th District, A. D. Meredith, Ames; 11th District, G. W. Beggs, Sioux City.

DELEGATES TO THE NEXT SESSION OF THE AMERICAN MEDICAL ASSOCIATION.

First District.— T. J. Maxwell and J. A. Scroggs, Keokuk; D. H. Stever, Fairfield; H. A. Gilman, Mt. Pleasant.

Second District.— L. J. Adair, Anamosa; W. S. Robertson, Muscatine; A. B. Bowen, Maquoketa; W. D. Middleton, Davenport.

Third District.— William Watson, Dubuque; G. B. Ward, Fairbank; D. M. Wick, New Hartford; S. N. Pierce, Cedar Falls.

Fourth District.—A. D. Bundy, St. Ansgar; I. K. Gardner, New Hampton; D. S. Brainard, Stacyville; S. B. Chase, Osage.

Fifth District.— S. S. Lytle, Iowa City; G. R. Skinner, Cedar Rapids; D. C. Brockman, Marengo; C. C. Griffin, Vinton.

Sixth District.— G. P. Clark, Prairie City; S. B. Thrall, Ottumwa; J. R. Gorrell, Newton; H. C. Huntsman, Oskaloosa.

Seventh District.— M. G. Sloan, Dexter; L. H. Surber, Cool; G. P. Hanawalt, Des Moines; E. T. Likes, Winterset.

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Eighth District.—J. B. Wilson, Creston; L. S. Graves, Afton; P. W. Lewellen, Clarinda; W. H. Gibbons, Chariton.

Ninth District.—W. E. Egan, Atlantic; J. E. Sansom, Anita; D. Macrae, Council Bluffs; C. W. De Motte, Shelby.

Tenth District.—L. J. Alleman, Boone; D. S. Fairchild, Ames.

Eleventh District.—J. D. McVay, Lake City; O. D. Donnelly, ————; G. H. Grimmell and Charles Enfield, Jefferson.

The committee recommended Cedar Rapids as the place for holding the next annual meeting—time, third Wednesday in May, 1885.

On motion, the Secretary was instructed to cast the ballot of the Society for H. C. Huntsman for President; which was done, and he was declared duly elected.

In the same manner the vote of the Society was cast for H. B. Ransom for First Vice-President, and for C. C. Griffin for Second Vice-President, and they were also declared elected.

Dr. Deering declined a re-election; and, upon motion of G. P. Hanawalt, J. F. Kennedy, Des Moines, was put in nomination, and unanimously elected.

The balance of the report was adopted as a whole, *viva voce*, except that Dr. Kennedy was elected chairman of the Committee on Publication.

The chair appointed Drs. McCleary and Hill a committee to conduct the President-elect to the chair; whereupon he was introduced to the Society and expressed his appreciation of the honor conferred in a neat address.

The retiring President thanked the Society for their courtesy toward him as presiding officer, and for the pleasure it had afforded him to assist in directing their deliberations.

A paper on "Gunshot Wounds" was presented by H. C. Markham, Independence; which was received and referred to the Committee on Publication.

The following resolution of J. W. Guthrie, Bedford, was presented by S. E. Robinson, and adopted without dissent:

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Resolved, That the Legislature of the State of Iowa be requested to pass a law making it obligatory that the formula of patent medicines and proprietary medicines be printed on the inside label of the package or bottle, so that an antidote for such poisons may be had in time to save the patient.

The revision of the Constitution and By-Laws, proposed at the last session, was called up by Dr. Hill, and, on motion of Dr. Robinson, it was laid over and referred to the Committee on Revision, consisting of Drs. Robinson, Williamson, and Kennedy.

Votes of thanks were passed to the retiring officers, the Committee of Arrangements, the railroads, and to the press of the city.

Dr. Crouse presented a paper prepared by J. W. Smith, Charles City, on "Gangrene;" which was read by title and referred to the Committee on Publication.

On motion, the Society adjourned *sine die*, at 3:25 P. M.

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PROCEEDINGS

OF THE

THIRTY-THIRD ANNUAL SESSION

IOWA STATE MEDICAL SOCIETY,

HELD AT

CEDAR RAPIDS, MAY 20, 21, AND 22, 1885.

FIRST DAY—MORNING SESSION.

CEDAR RAPIDS, IOWA,
May 20th, 1885.

The Society convened in the Young Men's Christian Association rooms, and was called to order at 10 o'clock A. M. by the President, H. C. Huntsman, Oskaloosa, and was opened with prayer by Rev. Dr. E. E. P. Abbott.

OFFICERS PRESENT.

President—H. C. HUNTSMAN, Oskaloosa.
Second Vice-President—C. C. GRIFFIN, Vinton.
Secretary—J. F. KENNEDY, Des Moines.
Assistant Secretary—G. E. Crawford, Cedar Rapids.
Treasurer—G. R. SKINNER, Cedar Rapids.

The following-named permanent members were present and registered during the meeting:

H. A. Gilman, Mt. Pleasant.
Albert Reynolds, Clinton.
E. H. King, West Liberty.
J. F. Kennedy, Des Moines.
Benj. McCluer, Dubuque.
W. H. Nichols, Rockford.
H. D. Ensign, Boone.
J. W. Finarty, Knoxville.
H. Ristine, Cedar Rapids.
A. B. Reed, Cedar Rapids.
W. J. Holman, Cedar Rapids.
J. P. Morison, Traer.
J. M. Ristine, Cedar Rapids.
C. C. Griffin, Vinton.
S. G. Wilson, Independence.
T. R. Ward, Oxford.

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S. G. Blythe, Nora Springs.
A. L. Wright, Carroll.
G. P. Hanawalt, Des Moines.
S. A. Spilman, Ottumwa.
D. Scofield, Washington.
B. H. Criley, Dallas Center.
J. H. Nicol, Lacona.
W. F. Graham, Atlantic.
D. Macrae, Council Bluffs.
T. J. Caldwell, Adel.
Rosa M. Upson, Marshalltown.
C. W. De Motte, Shelby.
F. S. Thomas, Carson.
A. L. Worden, Des Moines.
William Watson, Dubuque.
J. W. Smith, Charles City.
F. E. Cruttenden, Des Moines.
F. A. Weir, Jesup.
Jennie McCowen, Davenport.
Alice M. Stark, Ottumwa.
J. A. Sherman, Cherokee.
G. W. Beggs, Sioux City.
S. N. Pierce, Cedar Falls.
C. E. Ruth, Atalissa.
James T. Priestley, Des Moines.
D. M. Wick, New Hartford.
L. C. Swift, Des Moines.
J. I. Pogue, Wiota.
R. W. Miller, Menlo.
C. M. Drumeler, Panora.
F. M. Powell, Glenwood.
D. S. Fairchild, Ames.
F. W. Emery, Winterset.
W. C. Davis, Indianola.
R. S. Brice, Keota.
A. D. Bundy, St. Ansgar.
L. J. Alleman, Boone.
William Cornes, Tama City.
George F. Jenkins, Keokuk.
L. M. Johnson, Storm Lake.
G. B. Ward, Fairbank.
L. J. Adair, Anamosa.
C. M. Hobby, Iowa City.
O. T. Gillett, Iowa City.
S. E. Robinson, West Union.
W. D. Middleton, Davenport.
Charles H. Preston, Davenport.
J. R. Gorrell, Newton.
J. A. Ladd, Traer.
D. W. Overholt, Columbus Junc.
E. H. Hazen, Davenport.
Thomas Sherwood, Wilton.
Wm. L. Allen, Davenport.
D. C. Brockman, Marengo.
S. M. Cobb, Muscatine.
E. F. Clapp, Iowa City.
H. B. Young, Burlington.
D. S. Brainard, Stacyville.
H. L. Getz, Marshalltown.
E. B. Bills, Durant.
J. W. Haliday, Burlington.
W. S. Robertson, Muscatine.
M. B. Moon, Iowa City.
W. S. Wallace, Camanche.
G. E. Crawford, Cedar Rapids.
J. W. La Grange, Marion.
J. S. Roome, Calmar.
T. Roberts, St. Charles.
H. M. McKenzie, Elwood.
C. F. Darnall, Walnut.
W. C. Stillians, Clarinda.
J. L. Powers, Reinbeck.
J. B. Carder, Brooklyn.
G. L. Carhart, Marion.
J. C. Shrader, Iowa City.
G. E. Fullerton, Marion.
E. T. Likes, Des Moines.
J. N. Wilson, Sumner.
D. W. Crouse, Waterloo.
Wm. Fitzgerald, Grand Mound.
J. S. Love, Springville.
Reuben Sears, Marshalltown.
J. Williamson, Ottumwa.
S. Merrill, Muscatine.
Wm. H. Davis, Maquoketa.
D. H. Worthington, Fairfield.
F. M. Ward, Marshalltown.
H. C. Huntsman, Oskaloosa.

The following is a complete list of delegates whose credentials were approved by the Committee of Arrangements, and

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who, being duly elected, signed the Constitution and became permanent members:

Bremer County Medical Society — R. A. Dunkelberg, Denver.

Botna Valley Medical Society — John Riley, Exira; Charles F. Darnall, Walnut.

Cedar Valley Medical Society — W. H. McLean, Beaman; C. S. Chase, Waterloo; O. J. Fullerton, Waterloo.

Clinton County Medical Society — F. P. Batchelder, Lyons.

College of Physicians and Surgeons, Keokuk — John North, Keokuk.

Delaware County Medical Society — L. F. Cummings, Hopkinton; N. S. Craig, Manchester.

Des Moines Valley Medical Society — R. C. Hoffman, Oskaloosa; F. C. Mehler, New London.

Fayette County Medical Society — Joseph H. Murphy, H. S. Hadsel, Maynard.

Franklin County Medical Society — J. H. Hutchins, Hampton.

Fort Dodge District Medical Association — A. W. Garlock, Dayton; J. W. Kime, Fort Dodge; D. Reid, Manson.

Hamilton County Medical Society — S. W. Morehead, Eagle Grove; W. A. Green, Webster City.

Hospital for Insane — H. G. Brainard, Independence.

Iowa City Medical Society — L. M. Hess, Iowa City.

Iowa Union Medical Society — J. K. Melbourne, Mechanicsville; Edwin Burd, Lisbon; A. B. Poore, Cedar Rapids; B. S. Watson, Springville; George P. Carpenter, Cedar Rapids; C. H. Hunt, Stanwood; Ward Woodbridge, Waubeek; William Craig, Clarence; H. W. Sigworth, Anamosa; J. F. Escher, Loudon.

Jackson County Medical Society — J. F. H. Sugg, Sabula; W. H. Davis, Maquoketa.

Jasper County Medical Society — Perry Engle, Newton.

Jefferson County Medical Society — P. N. Woods, Fairfield.

Keokuk County Medical Society — J. M. Auld, Keota; E. Quinn, What Cheer.

Keokuk Medical Society — J. F. Kempker, Keokuk.

Louisa County Medical Society — W. S. Grimes, Wapello; M. W. Lilly, Grandview.

Medical Association of North-Western Iowa — J. H. Divine, Sioux Rapids.

Mercy Hospital — R. W. Hill, Iowa City.

Mitchell County Medical Society — J. L. Whitley, Osage.

North Iowa Medical Society — W. L. Duffin, Guttenberg; H. H. Clark, McGregor; C. H. Hamilton, Dubuque.

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Physicians and Surgeons of Muscatine County — Milo Avery, Springdale; A. A. Cooling, Wilton; H. Schumaker, Durant; W. M. Millen, West Liberty.

Page County Medical Society — P. W. Lewellen, W. C. Stillians, Clarinda.

Polk County Medical Society — Woods Hutchinson, T. W. Shearer, L. Redman, Mary D. Frederick, Des Moines.

Scott County Medical Society — J. P. Crawford, Stella B. Nichols, P. J. Byrne, Davenport.

Story County Medical Society — H. M. Templeton, Ames; S. T. Goodman, Maxwell.

Sioux City Medical Society — G. W. Beggs, J. C. Krejci, Sioux City.

Washington County Medical Society — E. R. Jenkins, West Chester.

Western Iowa Medical Society — S. A. McNerney, Danbury.

Quite a number of visiting physicians were introduced to the Society, and, being duly recommended, were elected members by invitation. A list of names of such was not furnished the Secretary.

F. E. Cruttenden, of Des Moines, presented the following resolutions regarding medical legislation:

Resolved, That the President of this Society appoint a committee of five to select a representative committee from each assembly district of the State to look after the representative from his district, and that this committee report before the close of the present session.

Resolved, That the President appoint a committee of three, whose duty it shall be to confer with the delegates from the county and district societies, and to prepare a bill for presentation at the next session of the Legislature.

Received and referred to a special committee.

The proposed changes in the Constitution recommended by the Committee on Revision of Constitution and By-Laws, and laid over by the meeting at Council Bluffs in May, 1883, and recorded on page 20 of this volume, were taken up and passed as recommended.

Hon. T. S. Parvin, Grand Secretary of the Grand Lodge of Iowa, Ancient Free and Accepted Masons, tendered the Society

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a cordial invitation to visit the Masonic Library. The invitation was respectfully referred to the Committee of Arrangements.

Adjourned.

FIRST DAY — AFTERNOON SESSION.

The Society was called to order at 2 o'clock P. M., and in the absence of both Vice-Presidents, ex-President Caldwell took the chair.

The chairman then introduced the President, H. C. Huntsman, who delivered the following annual address, which was referred to a special committee consisting of H. A. Gilman, J. Williamson, and C. W. De Motte:

PRESIDENT'S ADDRESS.

LADIES AND GENTLEMEN:

As the President of the Iowa State Medical Society I welcome you at this our annual gathering, and am glad to believe that to all our members, with but a single exception, so far as my knowledge extends, this has been a year of peace, prosperity, and success.

We meet to-day in this busy mart, with her beautiful streets and avenues — a city rich in her social and commercial advantages, her elegant homes and cultured citizens — situated on the banks of a beautiful river, where only the red man dwelt but a few decades since.

How blessed, in contrast, is our position with that of the pioneer days of the medical profession in Iowa! Then, long rides over desolate prairies, sloughs, and corduroy bridges — when pill-bags stocked with calomel, whisky, and the lancet held dominion. Sacrifice was graven with a pen of iron upon the life of the young practitioner, laying the foundation of his future fortune in these then western wilds. But now, I say it with generous elation, our profession has kept pace with the marvelous growth of the State. I need scarcely allude to our

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well-built cities, elegant homes, the advantages of travel, and marvelous facilities for transmission of thought; or refer to our medical literature and medical colleges, and extended *materia medica*, embracing in its therapeutics remedies of almost miraculous power. I fully believe that our profession will keep pace with the speed of modern improvement, and I know of no more useful member of society than a well-rounded, educated physician, exemplifying the time-honored maxim, "*Mens sana in corpore sano.*"

We are especially confronted at this present time with the attitude of the State of Iowa towards the liquor traffic, and I think the history of the past evinces that our profession will be equal to and worthy of the occasion. Iowa — "*This is the land*" — seems to be situated at the focus of the history of the past and present, and is the blossom of the civilization of the century. The moral forces set in motion by Omniscience in the ages long gone by are now bearing fruit on our soil. By the law of the "survival of the fittest," we have reached that exalted position where the eyes of the world are upon us; and while by faith our State has been entering on new and untried ground, a "pillar of fire" has been with her. There is no anachronism in the medical profession of Iowa, and I fully believe that it will heartily support this fearless young State in its gigantic struggle with a social disease that honey-combs society.

Of necessity I am limited in my remarks at this time, and desiring to be practical in what I say to-day, I avail myself of this opportunity to make some suggestions on this subject:

First. I would suggest that all physicians in the State should be registered, and none should be admitted to registration without examination by the State Board of Health, unless they have diplomas.

Second. That intoxicants for medical purposes should only be sold by registered pharmacists upon the prescription of registered physicians.

Third. Where either the physician or pharmacist acts colorably in dealing with intoxicants, he should forfeit his registration and professional rights in Iowa.

Fourth. The medical profession should endeavor to reduce the use of intoxicants in the practice to a minimum.

The experience of the observing physician at the bedside, in the use of intoxicants, corroborates the deduction of science

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that they are not needed as a remedy, although their anæsthetic properties and solvent qualities are recognized.

The impression has prevailed, to a greater or less extent, that intoxicants are necessary and indispensable in such cases as concussion, collapse, typhoid fever, consumption, dyspepsia, and kindred diseases. A long course of observation and experience has forced me to the most positive conviction to the contrary, and I have no doubt that there are others here who have reached the same conclusion by the same painful process.

To illustrate: A few months ago, in treating fractures and shocks resulting from a fall of a couple of workmen from a scaffolding fifty feet high, producing insensibility, with the usual concomitant symptoms, no intoxicants were used. The treatment was hypodermically, morphine and atropia, followed by a full dose of quinine for its tonic effect. Reaction was prompt and permanent.

Take another case: I was privileged, last summer, to assist Dr. W. F. Peck in a case of ovariotomy. The patient was a little, slender girl, and about one-third of her entire weight was removed in the operation, and not a drop of alcohol was prescribed for the occasion. A good recovery followed.

So far as typhoid fever is concerned, who to-day would rely upon intoxicants when an ounce of beef tea will accomplish more towards recovery than a pint of whisky? I probably ought to ask pardon of the beef tea for the comparison.

In cónsumption, with cod-liver oil and hygiene much may be accomplished; while intoxicants, so far as my experience goes, have proven not only inefficient, but, I believe, absolutely hurtful. Dr. Palmer ("Science and Practice of Medicine," Vol. II., page 292,) says: "An impression seems to have obtained a footing in this country that the use of alcohol, even in excessive quantities, tends to prevent consumption. The origin of this opinion it is not easy to discover. It was not imported from Europe, for, so far as I have been able to ascertain, it is not held there by any respectable authority. It is not sustained by any authenticated authority with which I am acquainted."

The statistical observations of Dr. Bell, of Brooklyn, N. Y., Dr. Davis, of Chicago, and all other authorities of this country, so far as my knowledge extends, point decidedly in the other direction. "Lebert emphatically states that the presence of alcohol is a cause of consumption," and Williams, Cham-

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bers, Peacok, Aikin, and others in England, "appear to concur in this view." It is generally held that alcoholism is a frequent cause of the fibroid form of the disease. It certainly induces a lower vitality, produces fatty and other forms of degeneration, and it would be rational to infer that it promotes rather than prevents the degenerative changes of phthisis.

The International Medical Congress, which met in Philadelphia in 1876, at which over six hundred delegates were present from this country and Europe, adopted a report in which alcohol was declared "to have no food value whatever, and to be so injurious in its effect on the human organism as to leave a grave doubt whether, even as a medicine, it did not do more harm than good."

It is well settled by medical science that the gastric juices have no effect upon alcohol, and hence it is indigestible. It is a foreign substance in the blood, retarding the circulation. It draws the water and albumen from the corpuscles, and only tends to disorganize the system.

Alcohol derives its popularity with the uneducated chiefly on account of its anæsthetic qualities — its action being closely allied to that of chloroform. Dr. N. S. Davis, in a treatise upon this subject, uses the following language:

"Like ether and chloroform, the presence of alcohol diminishes the sensibility of the nervous system and brain, thereby rendering the individual less conscious of all outward and exterior impressions. This diminution of sensibility, or anæsthesia, is developed in direct ratio to the quantity of alcohol taken, and may be seen in all stages, from simple exemption from all feeling of fatigue, pain, idea of weight, exhibited by ease, buoyancy, hilarity, etc., to that of complete unconsciousness and loss of muscular power. It is this anæsthetic effect of alcohol that has led to all the popular errors and contradictory uses which have proved so destructive to human health and happiness. It has long been one of the noted paradoxes of human action that the same individual would resort to the same alcoholic drink to warm him in winter, protect him from the heat in summer, to strengthen when weak or weary, and to soothe and cheer when afflicted in either body or mind.

"With these facts now before us, the explanation of all this is apparent. The alcohol does not relieve the individual from cold by increasing his temperature; nor from heat by cooling him; nor from weakness and exhaustion by nourishing his tis-

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sues; nor yet from affliction by increasing his nerve power; but simply by diminishing the sensibility of his nerve structures, and thereby lessening his consciousness of impressions, whether from cold, or heat, or weariness, or pain. In other words, the presence of the alcohol has not in any degree lessened the effects of the evils to which he is exposed, but has diminished his consciousness to their existence, and thereby impaired his judgment concerning the degree of their action upon him. It is this property of alcohol to produce that sense of ease, buoyancy, and exhilaration, arising from a moderate diminution of nerve sensibility, that gives it the fascinating and delusive power over the human race which it has wielded for centuries gone by."

There would be no objection to alcohol as an anæsthetic, were it not for its brutalizing effects when the appetite for strong drink is developed or awakened, which is too often the case when administered as a medicine.

The results of alcoholism — drunkenness, crime, debauchery, and delirium tremens — I need scarcely mention; but I may briefly allude to a subject not so well understood — the relation of drunkenness in the parent to insanity in the offspring. The Medical Superintendent of Eastern Michigan Asylum for the Insane says: "A careful analysis of several hundred persons treated shows that in about seven and one-half per cent of the males, and about eight and one-half of the females, there was a definite history of inebriety in one or both parents. The female children of drunkards suffer in relative frequency from the following forms of insanity: Mania, dementia, melancholia, and idiocy. * * * In some instances an inebriate heredity develops in one child as depravity, in another as inebriety, in a third as hysteria, and in a fourth as insanity. * * * Inebriety in parents is a frequent cause of insanity of their children, because drunkenness produces a transient insanity even in a healthy brain. Chronic drunkenness produces organic brain diseases, bringing in their train impairment of the memory, inactivity of the reason, a weakening of the will, and loss of the natural affections; all of which are capable of transmission to their children." Dr. W. A. Hammond, on this subject, holds substantially the same opinion.

The report for 1880 of the Superintendent of the Asylum at Mt. Pleasant shows that, out of 2,526 male cases, 219 were due to intemperance and 222 to masturbation, thus demonstrating that about one-fifth of all the insanity among males

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in our State is due to these two causes, and that they are about equal in their destructive power. "More need not be said; less could not be said."

Ladies and gentlemen: "Wine is a mocker, strong drink is raging, and whosoever is deceived thereby is not wise." When I attended lectures at Indiana Medical College, I witnessed the dissection of the body of a confirmed drunkard, who had frozen to death while intoxicated. In the ventricles of his brain was a fluid which, when a match was applied, burned like alcohol. Facts are God's arguments. "In His word he reasoned of righteousness, temperance, and judgment to come," declaring that "No drunkard should inherit the kingdom of heaven;" and the promotion of temperance, from the foregoing arguments, becomes a binding obligation upon the medical fraternity. The medical profession is intrusted with an exalted commission, and with it responsibilities equally great. Let us, then, be worthy of our high calling, and do our utmost to alleviate and prevent suffering from this as well as all other causes. The vital question of the right and duty of society in Iowa to protect itself by law from the ravages of the liquor traffic has passed beyond the stage of debate; the time has come for action — for loyalty — for loving obedience to our beloved State. At this crisis the medical profession of Iowa ought not to stand as a quasi-ally of the liquor traffic. O, Medicine, how many crimes have been committed in thy name! Under the garb of medicine the liquor traffic is seeking to retain its ascendancy in our State. This is its last ditch.

We move in a circle in which true dignity ought to be maintained, and there should be on our part an avoidance of everything that would lessen its excellence. I have been led to adopt the line of thought in this address, in part, by the well-known fact that a few of our profession have fallen victims to the deplorable drink habit; and as we stand before the community as a body of practitioners into whose hands is committed the ailments and sufferings and sorrows of our respective communities, ought we not to avoid everything that would diminish the respect and confidence reposed in us? Let each one, then,

"So live, that when thy summons comes to join
The innumerable caravan which moves
To that mysterious realm, where each shall take
His chamber in the silent halls of death,
Thou go not, like the quarry-slave at night,
Scourged to his dungeon, but, sustained and soothed
By an unfaltering trust, approach thy grave
Like one that wraps the drapery of his couch
About him, and lies down to pleasant dreams."

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A protest being filed with the Committee of Arrangements against receiving the credentials of the delegates from the Hamilton County Medical Society, and but one of the Committee on Ethics (A. W. McClure) being present, the President appointed as additional members of the committee, D. Scofield, J. Williamson, William Watson, and G. F. Jenkins, to whom the matter was referred.

A communication from the Louisa County Medical Society, relative to the importance of a law regulating the practice of medicine in the State, was received and referred to the Committee on Medical Legislation.

SECTION ON MEDICINE.

G. P. Hanawalt, of Des Moines, chairman of the Section on Medicine, made a brief report as to observations regarding the use of some of the newer remedies. An interesting discussion arose respecting the uses of muriate of cocaine, which was participated in by Drs. Priestley, Swift, Macrae, Ensign, and King. The paper was referred to the Committee on Publication.

"Rupture of the Spleen from a Phlebolite, and Consequent Death," was the title of a paper presented by C. F. Darnall, of Walnut. After being received it was discussed by Drs. Hanawalt and Emmert, and referred to the Committee on Publication.

Rosa Martin Upson, Marshalltown, read a paper on "Was it Scurvy?" which was received, discussed by Drs. Hobby and J. W. Smith, and referred as the previous paper.

A paper on "Spinal Irritation as a Distinct Affection" was presented by L. C. Swift, Des Moines; which was received and referred to the Committee on Publication.

The Committee on Ethics, after examining the credentials of the delegates from the Hamilton County Medical Society, reported as follows:

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The Committee on Ethics report in favor of the admission of Drs. S. W. Moorehead and W. N. Green as delegates from the Hamilton County Medical Society, and J. F. Will as a member by invitation, to membership in the State Medical Society.

A. W. McClure, *Chairman.*
W. Watson.
J. Williamson.
George F. Jenkins.

The membership of the society being twelve, they were only entitled to two delegates under the Constitution. S. W. Moorehead and W. N. Green were elected permanent members, and J. F. Hill a member by invitation.

George F. Jenkins, Keokuk, read a paper on "Contagiousness, Treatment, and Prophylaxis of Scarlatina;" which was received, discussed by Drs. Priestley, J. W. Smith, Kennedy, McClure, Upson, Scofield, Hutchins, Crawford, North, Finarty, and Watson. Referred to Committee on Publication.

Adjourned.

FIRST DAY — EVENING SESSION.

The following-named gentlemen were elected members of the Committee on Nominations by their respective congressional districts:

First District — H. A. Gilman, Mt. Pleasant.
Second District — E. H. King, West Liberty.
Third District — S. N. Pierce, Cedar Falls.
Fourth District — D. S. Brainard, Stacyville.
Fifth District — C. C. Griffin, Vinton.
Sixth District — J. Williamson, Ottumwa.
Seventh District — G. P. Hanawalt, Des Moines.
Eighth District — P. W. Lewellen, Clarinda.
Ninth District — F. S. Thomas, Carson.
Tenth District — D. S. Fairchild, Ames.
Eleventh District — G. W. Beggs, Sioux City.

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The amendment to the Constitution offered by D. Scofield at the Des Moines meeting, in May, 1884, as recorded on page 53 of this volume, was called up.

Dr. Scofield offered the following as a substitute:

1. That no district society shall send to this Society as a delegate any member who resides in a county where there is organized a county medical society.

2. That in each county but one society shall have representation in this Society, except in the case of hospitals, colleges, State asylums, and in counties having a population of more than fifty thousand.

After considerable discussion, the substitute was tabled, carrying the proposed amendment with it. The discussion preceding this action was participated in by Drs. Scofield, Hazen, Caldwell, Watson, and Kennedy.

REPORT ON PRESIDENT'S ADDRESS.

The special committee on the President's Address reported the following:

Your committee to which was referred the President's Address beg leave to report that the address is one that commends itself to the approbation of this Society in its moral and humanitarian aspects, but would respectfully submit that the question as to the place which alcohol is to hold as a therapeutic agent is one to be decided by the experience of the profession, always bearing in mind its baneful effects when not prudently administered.

H. A. GILMAN,
J. WILLIAMSON,
C. W. DE MOTTE, } *Committee.*

The report was received and adopted.

A paper entitled "The Metabolisms of the Animal Body" was read by T. W. Shearer, Des Moines, and, after being discussed by Drs. Hazen and North, was referred to the Committee on Publication.

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SECTION ON PUBLIC HEALTH.

E. H. Hazen, Davenport, read a paper on "Should Officers of Boards of Health be Practicing Physicians?" After being received, it was discussed by Drs. Jenkins, Crouse, Hobby, North, Peck, Hazen, and Caldwell. On motion, the paper was referred back to Dr. Hazen, with permission to print it over his own signature, the Society not wishing in any way to endorse the sentiments expressed therein.

Adjourned.

SECOND DAY—MORNING SESSION.

The Society was called to order at 9 o'clock A. M., President Caldwell in the chair.

The Section on Public Health was resumed, and W. S. Robertson, Muscatine, chairman of the committee, presented his report. After being received, it was discussed at length by Drs. McClure, Jennie McCowen, Hazen, A. Reynolds, Jenkins, and Watson, and, on motion, referred to the Committee on Publication, with the request to have the paper given to the State Superintendent of Public Instruction for general distribution in connection with his department.

Dr. W. H. Davis, Churchville, Virginia, fraternal delegate from the Virginia State Medical Society to this Society, was introduced by the President and invited to a seat on the platform. He made a brief and neat speech, conveying the fraternal and professional greetings of his State.

SECTION ON SURGERY.

H. B. Ransom, Burlington, chairman of this section, was absent.

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J. M. Emmert, Atlantic, read a paper on "The Immovable Dressing in the Treatment of Compound Fractures;" which was received, discussed by Drs. Peck, Getz, Dunkelberg, Clapp, and Emmert, and referred to the Committee on Publication.

W. F. Peck, Davenport, presented a paper prepared by T. J. Maxwell, Keokuk, entitled "A New Method of Treating Paronychia;" which was also received, discussed, and referred to the Committee on Publication.

H. L. Getz, Marshalltown, read a paper on "Conservative Surgery of the Hand and Foot;" which was received.

The Society then adjourned.

SECOND DAY — AFTERNOON SESSION.

The Society was called to order at 2 o'clock P. M., the President in the chair.

Dr. Getz's paper was discussed by Drs. Clapp, Peck, Emmert, and Getz, and referred to the Committee on Publication.

"Injuries of the Spinal Cord" was the subject of a paper read by L. J. Alleman, Boone. It was received, discussed by Drs. Peck, Getz, Priestley, and Fairchild, and referred to the Committee on Publication.

The special committee on Legislation, to which was referred the resolutions of Dr. Cruttenden and other papers on this subject, presented the following report; which was received, discussed by Drs. Robertson, Watson, J. W. Smith, Caldwell, Getz, Williamson, McClure, and P. N. Woods, put upon its passage, and adopted unanimously:

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To the President and Members of the Iowa State Medical Society:

The Committee on Medical Legislation recommend that the Society pass the following resolution:

Resolved, That it is the desire of the Society that the Legislature enact a law to regulate the practice of medicine, surgery, obstetrics, and their allied branches, under the heading, "A bill for an act to regulate the practice of medicine, surgery, obstetrics, and their allied branches, in the State of Iowa," containing the following provisions:

Be it enacted by the General Assembly of the State of Iowa: That, after this act shall take effect, no person shall practice medicine, surgery, obstetrics, or their allied branches, in the State of Iowa, who is not a graduate of a legally organized medical college, or who has not practiced medicine, surgery, or obstetrics, and their allied branches, in this State for at least five consecutive years prior to the date that this act shall take effect; that, on or before this act take effect, persons practicing medicine, surgery, obstetrics, or their allied branches, in this State, shall present to the State Board of Health satisfactory evidence, through diploma or certificate, that they are entitled under this act to legally practice medicine, surgery, obsterics, or their allied branches; that he shall receive a certificate from the State Board of Health, which he shall register with the clerk of the county wherein he shall engage in practice; that, upon presenting his diploma or certificate of practice, he shall pay the sum of one dollar; that any person who shall violate this act shall be fined not less than $50 nor more than $100 and costs for the first offense, and $100 and costs for the second offense, and imprisonment in the county jail for a period of not less than ninety days. To be framed in such language as to adequately provide for the legal technicalities, embracing substantially the provisions herein contained.

Also that the following, the first of the resolutions presented by Dr. Cruttenden, be adopted:

Resolved, That the President of this Society appoint a committee of five to select a representative committee from each assembly district of the State to look after the representative from his district, and that this committee report before the close of this session.

Respectfully,

T. J. Caldwell, *Chairman.*

F. E. Cruttenden, *Secretary.*

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In accordance with the above resolution, the President appointed as such committee Drs. Emmert, Robinson, Beggs, Gilman, and Ristine.

SECTION ON OBSTETRICS AND GYNECOLOGY.

D. Macrae, Council Bluffs, chairman of the section, presented his report; which was received, discussed by Drs. Peck and Getz, and referred to the Committee on Publication.

A paper on "The Treatment of the Umbilicus in the Newborn — Why do we use the Belly-band on the Infant?" was presented by E. H. King, West Liberty; which was received and referred to the Committee on Publication.

SECTION ON MATERIA MEDICA.

The report on this section was made by John North, Keokuk, chairman. It was received, discussed by Drs. Cruttenden, Holman, Emmert, Skinner, Scofield, Thomas, Riley, and Williamson, and referred to the Committee on Publication.

Dr. T. J. Caldwell, Adel, presented the following resolution, which was adopted:

Resolved, That a committee of five be appointed by this Society to confer with a like committee of the other medical societies of the State of Iowa in relation to a medical bill or practice act, and that said committee be composed of the following-named members of this Society: J. Williamson, Ottumwa; F. E. Cruttenden, Des Moines; A. A. Deering, Boone; J. M. Emmert, Atlantic; and J. F. Kennedy, Des Moines.

Adjourned.

SECOND DAY — EVENING SESSION.

SECTION ON NECROLOGY.

Memorial and biographical sketches of the following-named deceased members were presented and read by Dr. Watson: Charles H. Rawson, Des Moines, contributed by W. H. Ward, Des Moines; Robert S. C. Gwynn, Madrid, by G. A. Meredith,

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Ames; Robert J. Farquharson, Des Moines, by W. D. Middleton, Davenport; Nathan H. Tulloss, Iowa City, by E. F. Clapp, Iowa City; William Henry Smith, Glenwood, by C. B. Bosbyshell, Glenwood; J. A. Wright, Danville, by J. Williamson, Ottumwa; Mark Ranney, Mt. Pleasant, by A. W. McClure, Mt. Pleasant; George W. Stewart, Danville, by R. S. Brice, Keota; O. S. Knox, Waterloo, by S. N. Pierce, Cedar Falls; Archibald Stephens Maxwell, Davenport, by A. W. Cantwell, Davenport; Greenbury Ridgely Henry, Burlington, by G. Nelson Jones, Burlington.

For the time the *professional* of the Society was lost sight of, and the more endearing and tender relations of friend and brother became predominant. Some of the deceased had been members of the Society from its earliest days — had helped to lay its foundation and contributed largely to its superstructure, and the memory of their devotion to the Society, and of their general work and nobility of character, was an inspiration to those who remain.

The papers were all referred to the Committee on Publication.

Adjourned.

THIRD DAY — MORNING SESSION.

The Society convened and was opened at 9 o'clock A. M., President H. C. Huntsman in the chair.

G. W. Holmes, M. D., Tabriz, Persia, was elected a corresponding member of the Society.

The following proposed amendment to the Constitution was presented by J. F. Kennedy, and, as an expression of its hearty concurrence by the members present, was unanimously recommended to the Committee on Revision:

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AN ACT TO AMEND ARTICLE III. OF THE CONSTITUTION.

All auxiliary societies seeking representation in the State Medical Society shall furnish to the Secretary of this Society, on or before the first of March each year, a list of their officers and members, as well as a statement of the time and place of holding their meetings, together with such declaration of their requirements for membership as shall enable the Secretary and Committee of Arrangements to judge of their qualifications; and every delegate sent by such auxiliary society, before election to this Society as a permanent member, shall present to the Committee of Arrangements a diploma, giving name, place and date of graduation, or satisfactory evidence of the possession thereof.

The Committee on Publication submitted the following report:

To the Iowa State Medical Society:

Your Committee on Publication would respectfully report that, owing to unavoidable circumstances, Volume VI. of the Transactions of this Society, covering the years 1883 and 1884, though in press, is not ready for distribution at this meeting, as was hoped. The edition will consist of 600 copies, bound in stiff cloth, and the workmanship and material of the advance sheets give promise of an unusually fine volume. Glass & Hoover, Davenport, are the printers.

Your committee recommend:

1. That the proceedings and papers of this meeting be printed in connection with this volume. (Adopted.)

2. We believe the interests of the Society require the annual publication of our transactions, and that not later than ninety days after adjournment of each annual meeting the printed proceedings be put into the hands of the Secretary by the Committee on Publication, for distribution. (Laid on the table.)

3. We further recommend that all professional papers read before the Society, and referred to it by the Publishing Committee, be printed.

4. We believe also that the employment of a stenographer, to report the discussions of the professional papers read, would greatly add to the interest of the transactions, and would per-

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petuate many observations of value otherwise lost. We recommend such employment. (Referred to the committee, with power to act.)

J. F. KENNEDY,
J. WILLIAMSON,
G. R. SKINNER,
WM. D. MIDDLETON, } *Committee.*

SECTION ON OPHTHALMOLOGY AND OTOLOGY.

F. E. Cruttenden, Des Moines, read a paper before this section, entitled "Vocal Gymnastics and their Uses in Diseases of the Throat and Nasal Passages." The paper was received and referred to the Committee on Publication.

The following bills were presented, allowed, and ordered paid:

To A. C. Simonton, for assistance to Secretary	$ 10 00
" J. F. Kennedy, for postage, stationery, and express charges on papers	8 75
" G. R. Skinner, for postage, stationery, and exchange	4 75
" Republican Printing Co., for printing	1 25
" G. E. Crawford, for rent of hall and other itemized expenses of annual meeting	59 40
" G. R. Skinner, salary as Treasurer	50 00
" J. F. Kennedy, salary as Secretary	100 00
" J. F. Kennedy, extra for editing Transactions	50 00
Total	$284 15

Dr. Watson offered the following as an amendment to the By-Laws, which was adopted unanimously:

Resolved, That hereafter the Committee on Nominations be instructed to report to the Society the names of the two members, as candidates for President, who received the highest number of votes at the meeting of the committee.

ELECTION OF OFFICERS.

The Committee on Nominations reported as follows:

TO THE IOWA STATE MEDICAL SOCIETY:

Your Committee on Nominations beg leave to submit the following report:

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President — D. W. Crouse, Waterloo.
First Vice-President — A. W. McClure, Mt. Pleasant.
Second Vice-President — A. L. Wright, Carroll.
Secretary — J. F. Kennedy, Des Moines.
Assistant Secretary — L. C. Swift, Des Moines.
Treasurer — G. R. Skinner, Cedar Rapids.

COMMITTEES.

Of Arrangements. — G. P. Hanawalt, chairman, Des Moines; C. M. Hobby, Iowa City; L. C. Swift, Des Moines; W. C. Davis, Indianola; Rosa M. Upson, Marshalltown. The balance of this committee to be named by the chairman.

On Publication. — J. F. Kennedy, Des Moines; L. C. Swift, Des Moines; W. D. Middleton, Davenport; J. Williamson, Ottumwa; G. R. Skinner, Cedar Rapids.

On Ethics. — H. C. Huntsman, chairman; F. S. Thomas, S. N. Pierce, William Watson, G. F. Jenkins.

State Medical Board. — W. S. Robertson, F. E. Cruttenden, Jennie McCowen.

Revision of Constitution and By-Laws. — William Watson, S. E. Robinson, J. F. Kennedy.

On Necrology. — 1st District, John North; 2d District, L. J. Adair; 3d District, Benjamin McCluer; 4th District, E. S. Brainard; 5th District, W. C. Schultze; 6th District, E. W. Clark; 7th District, H. R. Page; 8th District, F. M. Powell; 9th District, D. Macrae; 10th District, S. W. Moorehead; 11th District, J. Amelia Sherman.

DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.

First District. — F. C. Mehler, J. A. Scroggs, P. N. Woods, J. C. Stone.

Second District. — F. A. Packard, J. K. Milburn, Stella B. Nichols, A. A. Cooling.

Third District. — S. G. Wilson, O. J. Fullerton, D. M. Wick, N. S. Craig.

Fourth District. — S. E. Robinson, A. D. Bundy, J. W. Smith, J. S. Roome.

Fifth District. — C. M. Hobby, H. Ristine, M. Meredith, J. P. Morrison.

Sixth District. — L. E. Baker, P. N. Woods, Alice M. Stark, R. C. Hoffman.

Seventh District. — J. T. Priestley, Woods Hutchinson, J. H. Nicol, J. W. Finarty.

Eighth District. — E. M. Reynolds, W. C. Stillians, J. E. Wilson, W. H. Gibbon.

Ninth District. — D. Macrae, F. S. Thomas, C. F. Darnall, W. F. Graham.

Tenth District. — L. J. Alleman, A. A. Deering, S. W. Moorehead, W. A. Green.

Eleventh District. — J. Amelia Sherman, R. E. Conniff, S. A. McNerney, J. P. Savage.

The committee recommended Des Moines as the place for holding the next annual meeting — time, last Wednesday in May, 1886.

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The report was received. The President and Vice-Presidents were elected by ballot, and the remainder of the report was adopted *viva voce.*

Drs. Watson and Emmert were appointed a committee to escort the President-elect, D. W. Crouse, of Waterloo, to the chair.

Before retiring, President Huntsman made a few touching remarks, thanking the Society for their courteous attention, the chairmen of the respective professional committees for their prompt response to his invitation to prepare papers, and cordially welcomed the President-elect to the honorable and responsible position he was called to fill.

Dr. Crouse, in a few well-chosen words, thanked the Society for the honor bestowed upon him, and for such a token of the confidence of the Society in him.

H. C. Huntsman made the following report of his official appointments during the year:

To the Iowa State Medical Society:

In compliance with the instructions of this Society at Des Moines last year, delegates to the following-named societies have been appointed, viz.:

To the Missouri State Medical Society—P. W. Lewellen.
To the Nebraska State Medical Society—B. A. Guyton, Jr.
To the Illinois State Medical Society—J. C. Hinsey.
To the Minnesota State Medical Society—W. L. Allen and Chas. H. Hamilton.

Also, D. Macrae to the American Medical Association, at New Orleans, from the 9th Congressional District, *vice* C. H. Pinney, not a member of this Society.

Respectfully, H. C. Huntsman.

The following resolution was presented by J. F. Kennedy, and passed unanimously:

Resolved, That this Society commend the *Iowa State Medical Reporter* as worthy of the confidence and patronage of our Society.

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The Treasurer, G. R. Skinner, presented the following report, which was received and referred to the Committee on Finance:

G. R. Skinner, *Treasurer,*

In account with the Iowa State Medical Society:

	Dr.	
To cash on hand as per last report	$1,051 65	
" one 4 per cent Government bond	500 00	
" amount received from permanent members from May 23, 1884, to May 19, 1885	43 00	
" one year's interest on bond	20 00	
" cash received from permanent members, May 20, 21, and 22, 1885	222 00	
" cash received from delegates, May 20, 21, and 22, 1885	189 00	
		$2,025 65
	Cr.	
By Order No. 116	$ 27 00	
" " " 117	8 75	
" " " 118	10 00	
" " " 120	60 65	
" " " 121	54 75	
" " " 122	150 00	
" 4 per cent United States bond	500 00	
" cash on hand	1,214 50	
		$2,025 65

G. R. Skinner,
Treasurer Iowa State Medical Society.

Resolutions were presented, and passed unanimously, thanking the retiring President for the impartial and courteous manner in which he discharged the duties of his office; the press of Cedar Rapids, for its full and faithful reports of the proceedings of this meeting; the local committee and profession of Cedar Rapids, for the very complete arrangements for the entertainment of the Society, as well as for personal courtesies; the Masonic fraternity, for their cordial invitation to visit their magnificent library, regretting that the large amount of work on the programme prevented acceptance by the Society as a body; and the railroads, for their generous reduction of fare.

On motion, the Society adjourned to meet at Des Moines on the third Wednesday of May, 1886.

J. F. KENNEDY, *Secretary.*

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SECTION ON MEDICINE.

I.

PULMONARY APOPLEXY.

By S. B. Chase, M. D., *Osage.*

In all the vast realm of physical suffering there are few ills which alarm or distress more than the one to which I would briefly call your attention. Its etiology to me is not clear; nor can I promise you a diagnosis unquestioned, a prognosis unfailing, or a catholicon sure and speedy. All ages are its victims — though perhaps more frequently the somewhat advanced in life.

Among its causes may be mentioned pericardial distention, the efflux of blood from the lung being impeded by compression of the left auricle and pulmonary veins; hypertrophy of the right ventricle, giving rise to congestion of the pulmonary circulation; so, also, if there be obstruction in the parenchyma of the lung, or lesions of the mitral valves. A thrombus resulting from inflammation may likewise be a cause, either immediate or remote. But, more common than all these, in my opinion, are pulmonary emboli. Here is a field large and inviting, scarcely entered. When it shall have been explored, embolic twigs, I predict, will be found the "hidden hand" of much mischief.

Undue tension within the pulmonary artery or its ramifications induces hypertrophy of their walls, frequently resulting in atheroma, be the cause acute or chronic parenchymatous inflammation. Normally this branch of the vascular system is little liable to such change. Atheroma, according to Fother-

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gill, "a cell proliferation in the walls of the arterial system," may occur in any artery whose walls are subject to great or long-continued strain. It is a frequent accompaniment of hypertrophy of the right ventricle, and of change in the muscular coat of the arterioles. It is sometimes conservative, "modified," as Erichsen says, "by the organism in which it is found." Dittrich was the first to discover these patches and point out their frequency. He asserts that the branch leading to an apoplectic patch is generally, if not always, plugged with fibrin. May we not have here, then, a key to the whole matter?

In the nosology of many early and some modern writers, pulmonary apoplexy is classified as a type or sequence of hemoptysis. There is too marked a distinction, however, to warrant such classification; as in hemoptysis the blood issues from the pulmonary surface, while if present in pulmonary apoplexy it is from the parenchyma itself, into which it has been effused. Flint suggests that in such cases our nomenclature is at fault — that the term should be pneumorrhagia. Watson goes further, and says that the term is not only faulty, but that what has been made a distinct form of disease is simply one of the sequelæ of pulmonary hemorrhage. Admitting the correctness of these conclusions when hemorrhage is present, what shall we name the disease when hemorrhage is absent — a condition predominate, so far, at least, as my observation extends?

The prognosis depends largely upon the cause and severity of the attack, and the condition and surroundings of the patient. These all being favorable, a hopeful prognosis may fail. So far as opportunity has enabled me to study the disease clinically, my opinion inclines to the belief that a majority will recover if properly cared for. If the cause be from permanent hypertrophy of the heart, or any portion of it, the prognosis will be unfavorable, although the case may not be hopeless. The same will be true if a hemorrhagic diathesis exists. The profession, however, has come to regard hyper-

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trophy with less fear than formerly, and to work and hope for cure or relief in cases once considered hopeless. The same may also be said of grave cases of pneumorrhagia.

The indications for treatment are not always clearly outlined, whether the cause be from hemorrhage, cardiac change, thrombus, or embolism. Should it be from hemorrhage and due to hyperæmia, venesection and cardiac depressants should be vigorously resorted to, with hot pediluvia and rest. If due to disintegrating arterial or venous walls, they should be strengthened by such remedies as science or experience has shown to be most efficient. Special among these may be mentioned ergot for its constringing effect upon the muscular coats, with quinine and iron as blood tonics. If the result of parenchymatous inflammation, the treatment is indeed a complex matter. As Herbert Spencer has said, "We have to adapt complex concatenated measures to complex concatenated actions."

No inflexible rule can be stated for the treatment of cardiac hypertrophy. Mindful that such condition is sometimes beneficial, we should exercise great care lest in our efforts to relieve we antagonize the healing power of nature. No greater antagonism exists between the incompatible remedies in our pharmacopœas than between *vis medicatrix naturæ* and unskilled or meddlesome interference. Should hypertrophy and dilatation coëxist, little inconvenience would result, save enlargement and increase in weight. When the trouble arises from thrombus or embolism, our aim should be to remove the clot by the hot bath, or cloths applied to the surface as hot as they can be borne, administering correctives to defibrinate the blood. Among the most valuable for this purpose are the mercurials and muriate of ammonia. As illustrative of some of the foregoing points, I would respectfully submit for your consideration the following cases:

Case 1. Some years since, in a neighboring village, an American, about thirty years of age, was suffering from an acute attack of pneumonia. He was under the care of an in-

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telligent physician, Dr. R., of S.——, and was apparently doing well, when suddenly he was attacked by pulmonary apoplexy, following hemorrhage into the parenchyma of the right lung. I saw him a few hours thereafter, in consultation with Dr. R., and found him suffering extreme dyspnœa, with indications of speedy death. Stimulants and counter-irritants, with hot pediluvia, much to my surprise, relieved the sufferer; and remedies to strengthen the arterial walls effected a permanent cure.

Case 2. Also an American, in my own town — a lady of about the same age — afflicted with phthisis pulmonalis. She was endowed with superior mental powers and highly cultivated, but had little physical strength. A severe attack of pneumonia, some years before, had apparently destroyed her left lung; yet her health was fairly good, until, from a slight cold, her right lung became congested. For thirty-six hours breathing was difficult, but not specially labored, until a violent attack of pulmonary apoplexy occurred, due to a large embolus in the right lung. For hours her suffering was intense. The dyspnœa was terrible, orthopnœa continuous, cyanosis extensive, and death, to all appearance, imminent. To my amazement, the struggle for breath forced the left lung open, though for years it had been closed, and was supposed destroyed. The patient lived for some time, but died eventually of consumption, the right lung never fully relieved.

Case 3. This occurred in a neighboring village, late last fall. The subject had charge of a creamery during the season, and, unknown to him, the floor upon which he worked was over stagnant water, caused by a defective drain. He was twenty-five years of age, a robust Kentuckian, who had never before known sickness. Ailing for some time, he at length came down with an attack of pneumonia, and for two weeks was under the care of an eclectic physician, doing well, as was supposed, and about ready to resume work, when, without recognized premonition, a large embolus floated into the right pulmonary artery, completely closing it. The result you can

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readily divine when informed that the left lung was yet much congested. In alarm his physician declared that he was dying of collapse — that no earthly power could save him — and prognosed immediate death. I saw him within an hour, and appearances indicated the probable confirmation of the prognosis. The sufferer was bathed in perspiration, livid, gasping for breath, with two attendants fanning him, sitting upright in a chair, with doors and windows wide open, although the weather was extremely cold.

For two weeks the struggle continued, day and night, with scarcely a moment's abatement, rendering it difficult for him to swallow or even to speak. The right ventricle was slightly enlarged, but there were no further indications of cardiac trouble. The feet and limbs were at once wrapped with cloths dipped in strong mustard water as hot as could be borne, the same applied to the chest, and changed the moment they became perceptibly cool, and sedatives administered to reduce the cardiac force. Every effort possible appeared of little value, until, from large doses of digitalis, the circulation had become greatly reduced. The temperature was but little above normal, although for two weeks the circulation was 150 to 160. Respiration gradually became less difficult, though a number of weeks passed before the patient could lie down or give his fanners rest. I do not call to mind, in a somewhat lengthy medical life, one that more thoroughly tired or came nearer freezing a strong force of attendants. Convalescence once established, progressed slowly, but was permanent. The patient is now fully recovered, except a slight lesion of the mitral valves, which is gradually improving.

My eclectic friend acknowledges his prognostic failure, but still insists that there is no such disease as pulmonary apoplexy. If he is correct, by what term shall we designate the affection? Collapse will scarcely answer, as the heat and perspiration resulting from the dyspnœa disprove such diagnosis. The sequence of pneumorrhagia will not do, for in the first and last cases given no such condition existed. In both of these

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the semiology and physical signs alike confirmed the embolic diagnosis. To me the name appears appropriate. If any gentleman present can give one more indicative, he will confer a professional favor.

DISCUSSION.

Dr. Chase, in connection with his paper, presented some specimens of atheromatous lung tissue, from a case in which apoplexy had occurred.

Dr. Jenkins agreed with the statements set forth in the paper, in the main. He had never seen a case in which the apoplectic condition was so extensive as the one represented by the specimens presented. Had seen cases of less extent. As to treatment, there was nothing new to suggest; he would rely on the ammonia salts, ventilation, hygienic care, etc.

II.

LEPROSY.

By R. J. Farquharson, M. D., *Des Moines.*

The consideration of this disease at the present time might seem to many as inappropriate as that of the "Sweating Sickness" or the "Black Death" of the Middle Ages. Nevertheless, interest in it has been revived by its recent outbreak in the Sandwich Islands, its presence in California, Louisiana, Canada, and in some of our North-western States, in which it might be possible to include Iowa; and this must be my excuse, if any is indeed needed, for addressing you for a few moments on this subject.

Leprosy is, without doubt, the oldest of all known diseases: its existence, indeed, antedates all history. Besides its early mention in holy scripture, its incorporation into Chinese law as the second of the five recognized causes of divorce proves

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the very great antiquity of its existence. In the Middle Ages it was the most prevalent of diseases. In 1226 there were two thousand leper hospitals in France alone, and nineteen thousand of them in Europe; they were in all parts of England and Scotland. The disease has almost entirely disappeared from Europe, the last indigenous case in Scotland dying in the beginning of this century. It lingers, however, in some isolated spots — notably in Norway, where, a few years since (1856), there were two thousand cases, and which locality is the source of our supply.*

In Keith Johnstone's map of the geographical distribution of disease (a copy of which may be found in Blythe's Dictionary of Hygiene), North America is the only one of the great divisions of the earth on which leprosy is not marked; but the disease prevailed then in Canada, the North-western States, Louisiana, and in Mexico. In Louisiana it existed more than a century ago, being noticed in Roman's History of Florida (1776), and in 1785 a hospital for lepers was erected in the vicinity of New Orleans, the site of which bore the name of the "Leper's Land" (*la Terra des Lepreux*) for many years after the destruction or decay of the buildings. The disease was then commonly among the negroes, and was in all probability brought from Africa, where it has always existed; indeed, Dr. Joseph Jones in 1850 saw a case of leprosy in Georgia in the person of a native African. But it is a singular, if not significant, fact that at present (1880) all the cases (sixteen) observed by Jones on Bayou La Fourche, and all the recorded cases treated in the Charity Hospital of New Orleans, were whites. Certainly there can be no question of heredity here.

Leprosy was introduced into the province of New Brunswick, Canada, at Tracadie, near the Bay of Chaleur, in 1820; how and whence is not known. There are a few cases there now, and a leper hospital. Dr. Graham, of Toronto, visited

* In Norway, in 1872, with a population of 1,756,965, there were total deaths, 29,417; from leprosy, 120 — over 4 per 1,000.

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this quarter last summer (1883), and gives the following as the result of his observations:*

"1. The origin and early spread of the disease cannot be explained on the theory of hereditary transmission, although this theory may account in part for its further propagation.

"2. Although endemic influences, such as mode of life, diet, etc., may be strong predisposing elements, they are in no case the sole cause of the disease.

"3. Leprosy in Tracadie was *imported from without*, and, finding favorable conditions, was propagated from one person to another by *contagion*." [Italics mine.—R. J. F.]

In the Sandwich Islands leprosy was introduced about 1843 — from China, probably. In 1865 a leper hospital was established in the island of Molokai, where, at the time of Dr. Tryon's visit, eight hundred and six lepers were found. Since then (1882) Dr. White, U. S. N., visited the Sandwich Islands and reports as follows:

"*Leprosy seems to be on the increase. To the two per cent of the total population (58,000) known to be affected, and now under government care on the leper island of Molokai (1,160), an estimate of three per cent more is added of concealed cases by persons who claim to have some knowledge of the subject (1,740), making a total of 2,900 cases of leprosy.*"

From this it appears that here we have a marked exception to the general rule of the decrease of leprosy throughout the world.

In regard to the prevalence of leprosy in Norway, Dr. Danielson, of St. George's Hospital, Bergen, reports 1,200 cases in a population of 200,000 on the coast of Norway (equal to six-tenths of one per cent). As to its decline, the statistics are: In 1856, 2,113 cases; in 1874, 1,832 cases; in 1878, 1,681 cases.

VARIETIES OF LEPROSY.

The latest writer (Erasmus Wilson, in Quain's Dictionary of Medicine, article, "Leprosy") divides the varieties of the disease as follows: Elephantiasis (græcorum)—elephantiasis

* Leprosy in New Brunswick, by J. E. Graham, M.D., Montreal, 1883.

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tuberosa and elephantiasis anæsthetica; sub-variety, elephantiasis nodosa ut mutilans.

PATHOLOGY.

Leprosy is classed by the pathologists among the "infectious granulation humors" (Virchow), three of which—tuberculosis, glanders, and leprosy — are now known to have characteristic bacilli, and the fourth, syphilis, is suspected of having such.

The morbid anatomy of leprosy shows a thickening of the neurilemma of the nerves and a separation of their fibrillæ by a dense cellular deposit, and a similar cell infiltration in the leprous tubercles. This condition, although always found in leprosy, is not peculiar to that disease, being found also in bucnemia, lupus, glanders, and syphilis; hence, many eminent pathologists, including Virchow and Hebra, think this condition to be merely a symptom and association, the distinguishing pathological feature of the disease remaining yet to be discovered.

BACILLUS LEPRÆ.

The B. lepræ is described as a very delicate rod, about one-half the length of a red-blood disc, and one-fourth as wide as long, tapering at the ends. The rod may be thickened by several nodosities — the spores (Gradle, p. 192). They have been successfully cultivated, but all attempts to produce the disease from them in other animals have failed.

CAUSES.

As the disease prevails all over the world, among all races, in all climates, at all elevations above the sea-level, among all classes and conditions of society, from the highest (including kings) to the lowest, and among those subsisting upon the most varied kinds of food, it might be rightly conjectured that it has been assigned, without much satisfaction, to many different causes. Erasmus Wilson is inclined to attribute it to marsh exhalations, and, after mentioning some observations looking this way, says:

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"*The writer could multiply cases of this kind considerably, and has had this conviction forcibly borne in upon him — that the cause of leprosy is miasma. No other cause is of such general distribution, suiting every climate and every part of the world, unless it be such countries as have been relieved of this cause by land culture and improvement.*"

MODES OF PROPAGATION.

The consideration of these may be at once reduced to two — contagion and hereditary transmission — and, in all probability, leprosy, like its congener, syphilis, may have both.

In New Brunswick, although heredity was the common mode of transmission, yet in Dr. Graham's report there are cases which cannot well be explained without calling in the aid of contagion.

Again, among the cases reported by Dr. Jones from Louisiana is one so marked that I cannot refrain from briefly alluding to its peculiar features:

"CHARITY HOSPITAL, NEW ORLEANS, Dec. 6, 1879.

"Father Boglioli, native of Italy, aged 66; came to United States in 1840, at the age of 26; has had yellow fever, and been most of the time in New Orleans and Louisiana; for fourteen years was priest to the charity hospital. Gives the following opinion as to the origin of his disease: In 1879 administered extreme unction to two cases of leprosy, rubbing their hands with oil, etc.; also had attended several other cases of leprosy, in his capacity of religious adviser and pastor, in the male and female wards."

Erasmus Wilson says of contagion, in speaking of the introduction of leprosy into the Sandwich Islands by Chinese emigrants in 1848 and its rapid increase, and commenting on this significant fact, gave it as his decided opinion "*that, though leprosy was, under ordinary circumstances, non-contagious in Europe, it was probably contagious in tropical and sub-tropical countries.*"*

The presence of a peculiar bacillus is also a strong presump-

*Dr. Liveing, Gulstania Lecture, 1873, p. 92.

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tive proof of contagiousness, or else leprosy must be a strange exception to its kindred, glanders, tuberculosis, etc.

But leprosy is not contagious in the ordinary acceptation of the term. It requires an absolute inoculation of pus or blood into the circulation through open vessels or abraded surfaces; and, at the same time, it is assumed that we must have the cachectic condition favorable to the action of the virus.

Cohabitation is equally a cause of infection, the local conditions of absorption being the same.

"Vaccination (*i. e., human, as practiced in the Sandwich Islands in 1853*), as previously stated, is also considered to be a means of inoculating the system with leprosy." (Dr. Woods, U. S. N., Fourth Report Navy Department, 1879.) The same author states that the dressers in the hospitals of Calcutta and other portions of the East, positively free from hereditary disease, have, in many instances, developed it under circumstances connecting the inoculation with their duties; and Dr. Robinson, Superintendent of the leper-house in the Seychelles Islands, became a leper during the period of his connection with that institution.

DIAGNOSIS.

In this branch of the subject we will first consider the various diseases with which leprosy has been at various times confounded.

In the Bible, the leprosy of Naaman, Gehazi, and Moses was not the true disease, but leucoderma, or morphœa alba. These diseases are known as white leprosy. White leprosy is very prevalent at the present time in India, where, strangely enough, it is called "Jewish leprosy" (Liveing, *sp. cit.*, p. 146). Dr. Carter, in his report on leprosy (1872), says: "*White leprosy is everywhere found; perhaps one person in fifteen hundred in the whole Bombay Presidency is affected with it.*" It differs from leprosy in being essentially a local disease, and often unilateral.

Another disease confounded with leprosy, even in the Bible, is bucnemia, or Barbadoes leg. This confusion exists in

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modern times, perhaps, in a greater degree, from the confounding of the names, elephantiasis græcorum and elephantiasis arabum. The distinction is easy, however, as the one has a bacillus and the other a filaria, if not as a cause, yet a constant attendant. Leprosy has been confounded with yaws, but only among negroes.

Syphilis is the disease with which leprosy in this country is most apt to be confounded, and I would beg any of our members residing in the northern counties of this State to narrowly watch among their patients for symptoms of secondary syphilis, especially of an unusual or abnormal kind. This request will seem pertinent and reasonable when they consider the chronic nature of leprosy and its consequent easy concealment, and also when they hear of the researches made into its history in this State, and the surprise of even the oldest practitioners to find that it had prevailed and deaths occurred from it among the people of their neighborhood without their even suspecting the existence of such a state of affairs.

Dr. White, of Boston, says: "*Take my own single experience: One of the Tracadie cases escaped from the lazaretto (in New Brunswick, Canada), twenty-five years ago, and was for a considerable time a resident of Boston. He was under my charge for months at the Massachusetts general hospital. There has died, the past year, under my care, one of the Louisiana lepers from the Plaquemine district.*"*

LEPROSY IN THE STATE OF IOWA.

Last summer I was a good deal surprised by the receipt of a request directly from Dr. Frederick Eklund, of Stockholm, Sweden, and also from him through the National Board of Health, to furnish him with details of cases of leprosy in this State. Never having heard of the existence of a case in the State, I so replied, asking him for the source of his information. Later I had an answer, stating that it was from the published statements of Dr. Holmboe, who visited this State in 1863, and of Prof. Boeck, the date of whose visit was 1870.

* American Journal Medical Science, October, 1882, p. 447.

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My next step was to write a letter to the Rev. L. A. Johnston, pastor of the Swedish church in Des Moines, and from him had the following answer:

"*In reply to your letter, I can say that I have never heard of a case of leprosy among the Swedes or Norwegians in Iowa, or in any other State of America or elsewhere.*"

As both Holmboe and Boeck located cases in Winnesheik county near Decorah, I asked Dr. Small, health officer of that city, to investigate the matter; which duty he very promptly performed, the results of his researches being shown in the following extracts from his report of the date of August 29th, 1883: Dr. Small begins by stating that, though he had practiced medicine in Winnesheik and the adjoining counties for twenty-seven years, yet he had never heard of a case of leprosy. Interviews with the prominent Norwegians in the town of Decorah yielded no information. Finally he got a clue from Mr. Egge, the County Auditor, who remembered that when he was a boy Dr. J. A. Holmboe and the Rev. Mr. Koven, of Bergen, Norway, visited his father in search of cases of leprosy.

The Rev. Mr. Koven being still alive, Dr. Small paid him a visit, and from him had the following interesting information: Dr. Holmboe visited this country in 1863 and made a tour of inspection in regard to leprosy among the Norwegians. Both Dr. Holmboe and Mr. Koven were familiar with leprosy in the hospital erected in Bergen two hundred years ago. Johannes Simonsen was pointed out, whom both gentlemen knew in Norway. (This is Holmboe's second case.) But he is now living, seventy-five years old, in good health, and has never had any symptoms of leprosy, nor have any of his family.* Dr. H. saw, in 1863, the death here of a man supposed to be Knut

*There is some mystery here. Dr. H. knew leprosy well, and therefore could not have been mistaken; neither could his patient have recovered, such an event being unknown. The mistake arises from the unfortunate repetition of the same names, both Christian and surnames, among the Scandinavians.

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Ericsen (Holmboe's third case). Mr. Koven had in his congregation a case of leprosy, a certain N. N. Remene, who died April 6th, 1877. He had lived in this country fourteen years before the disease made its appearance, and was a horse-drover in the West, camped out, and lived on poor food. None of his family, however, have been afflicted. Finally, the reverend gentleman stated that for thirty years he has traveled over all of Northern Iowa and Southern Minnesota, and, with these exceptions (four cases), he has neither seen nor heard of any other cases of leprosy; and it is his opinion (as it is also Dr. Small's) that there is not a case of this disease in Northern Iowa or Southern Minnesota.

Of the eighteen cases of leprosy observed by Prof. Boeck in 1869–70, three were in Iowa:

1. Edward Neilson Taraldsgaard, Hesper township, Winnesheik county, was then (1869) twenty-three years old, two years in America; brought his disease with him from Norway.

2. Ole Torkildson Fosse, Pleasant township, Winnesheik county, then (1869) thirty years old; disease appeared three and one-half years after his arrival in this country; had in Norway leprous relatives.

3. Ole Iverson Dale, Winnesheik county, then (1869) forty-three years old, brought the disease from Norway; does not know of any leprous kin.

The above information is derived from a special report of Dr. Gronvold, of Norway, Minnesota, of which Dr. Hewett, Secretary of the Minnesota State Board of Health, was kind enough to send me a copy; which report is dated September 11th, 1883.

Authority.	Year.	Township.	County.	No.	Names.
Holmboe	1863	Madison.....	Winnesheik	1	Ljar Petersen.....
Holmboe	1863	Union Prairie	Winnesheik	2	Johannes Simonsen.....
Holmboe	1863	Union Prairie	Winnesheik	3	Knut Ericsen.....
Koven...	1877	.....	Winnesheik	4	N. N. Remene.....
Boeck...	1870	Hesper.....	Winnesheik	5	Edward Neilson Taraldsgaard
.....	....	Pleasant.....	Winnesheik	6	Ole Torkildson Fosse .....
.....	....	Madison.....	Winnesheik	7	Ole Iverson Dale .....

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It thus appears that, in the past twenty years, there have certainly been in Iowa seven cases of leprosy — all now dead; the latest dying April, 1877.

Winnesheik county, in 1880, with a total population of 23,938, had a foreign population of 7,862, of which 4,095, or fifty-two per cent, were Scandinavians (Swedes and Norwegians), of which the whole State had then 39,145; so that, of the Scandinavian population of the State, Winnesheik county had about ten per cent.

As yet we have no knowledge of the existence of the disease in a child born in Iowa; but that such an event is possible, is shown by Dr. Hyde's report of a child born in Minnesota, of Swedish parentage, the father having leprosy in the tubercular form.

Many persons may think the danger of the spread of leprosy in this State is small; but, as Dr. Billings significantly remarks, "*The danger is no doubt small — that is to say, there is very small risk of a very great danger — but it exists, and now is the time to guard against it.*" *

APPENDIX.

Answer to Dr. Eklund's letter, by Dr. Gronvoeld, of Norway, Minnesota, member of the Minnesota Board of Health, dated July 17, 1883, giving an account of leprosy in Minnesota at that time: †

1. Circulars sent to Norwegian physicians and clergymen in Minnesota.

2. Twenty answers from eleven counties.

3. Only two cases of real leprosy reported — both cases of the anæsthetic form, and both natives of Norway.

4. One of these cases had the disease in Norway, but was first seriously attacked seven years after coming to this country — nine years ago. He has grown children, all well.

* Lectures on Germs: Sanitary Enquirer, March 29, 1883, p. 388.

† In this State, Boeck saw four cases in 1870. In 1878 Dr. Gronvoeld reported four cases — two dead in 1878 (one of Boeck's cases), and two living.

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5. Dr. Gronvoeld knows of three cases in his vicinity (Holden, Goodhue county)—one male and two females—all brought the disease from Norway; two have children with grandchildren, all well.

6. In the past ten years Dr. Gronvoeld has seen other cases in transient persons, but has lost trace of them.

7. In the past ten years five lepers have died in his vicinity (Holden, Goodhue county); but, in one of these (Boeck's case No. 2), the disease had stopped years before his death.

8. Of these five lepers two were married, and have children and grandchildren, all well.

9. Of Boeck's four cases in Minnesota, two (Boeck's 2 and 3) are dead; one (Boeck's 1) is yet living, and the fourth (Boeck's 13) cannot be traced.

10. Dr. Gronvoeld thinks that there are other cases of leprosy in the State of Minnesota, but admits the difficulty of discovering them, owing to the great disinclination, both on the part of the patients and their relatives, to confess the existence of the disease.

11. As leprosy is steadily diminishing in Norway, and as immigration is its only source, it must decrease here also.*

WISCONSIN.

Of leprosy in this State, where Boeck saw nine of his eighteen cases, the only information I have been able to find is in a letter of Dr. J. T. Reeve, Secretary of the Wisconsin Board of Health, to the *Sanitary News*, dated August 27, 1883, and published in the number of the paper for September 15, 1883. In this it is stated that Dr. Knut Holgh, a member of the State Board, has, since 1869, been investigating the subject, and in the fourteen years has seen but four cases—two of which, if not all, are now dead.

ILLINOIS.

Of leprosy in this State, where Boeck found two cases, I can find no record.

* In Norway, in 1856, there were 2,113 lepers; in 1874, 1,832 lepers; and in 1878, 1,681 lepers.

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III.

LESION OF THE MOTOR AREA OF THE BRAIN FROM CONTRE-COUP.

By J. H. Greene, M.D., *Dubuque.*

The field of cerebral localization has been so prolific in the past few years, and observations not alone in symptomatology, but the post-mortem examination, so exact, that no interest is elicited in such cases unless they represent the labor of those speaking *ex cathedra*, or that they possess unusual points of interest. Believing the following case to present some unique features, I shall report it, disarming criticism by a frank avowal of my inability to discuss the case profoundly, possessing neither special knowledge in this department, nor time and opportunities for extensive research.

The subject of the following clinical history was a stout, healthy man, of Irish descent, right-handed, aged thirty years, unmarried; occupation, watchman on a river boat; of irregular habits, with no obtainable evidence of previous illness or disease. He was first seen by me on the night of February 20, 1882. Nothing was known, at the time, of the causation of his injury, though it was afterward rumored that he fell quite a considerable distance on the night of the 19th. He was brought to the house, on the morning of the 20th, by two men, who disappeared as soon as his presence was made known. He walked into the house, and, with some assistance, upstairs, giving evidence of pain. He apparently resented all inquiry; and, as he was always remarkably reticent, and as he was thought to be profoundly intoxicated, he was left to himself. Just previous to my being sent for, he had what were called "choking-spells." Nothing could be elicited from him, which was thought by myself and his friends to be due to obstinacy and the effect of prolonged dissipation. He endeavored to strike me during examination. He refused to obey any request. I found a bruised cut three inches above the right auditory meatus, extending posteriorly three and

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one-half inches. There was much tumefaction. There were two broken ribs, the fractures situated posteriorly on the right side. He had arisen from bed, at times, to pass water, giving expressions of pain. On the morning of the 21st his condition was apparently unchanged. He refused to talk, but this excited no comment, as it was one of his peculiarities. On the afternoon of the 21st he had a convulsion, and I was sent for. I found him apparently conscious, with no paralysis, and with no apparent change in his condition, save a pulse of 68; temperature 101. On the 22d he had another convulsion, and, in obedience to instructions, it was noted that it was limited to the right arm and the right side of the face. It was not followed by paralysis, or by any marked degree of coma. The wound was torn open, and a careful examination made. No injury to the skull could be detected. Pulse 64; temperature 101. He continued to have convulsions during the day, at irregular intervals, some of which I observed; they began in the right side of the face and in the right arm, with conjugate deviation of the eyes to the right. No change in the pupils noted. Axis of right eye seemed directed slightly outward. The convulsions, after repeated attacks, extended to the right leg, and afterward became more general. His right hand and arm presented a congested appearance. Surface temperature one degree lower on right palm. Has said nothing. Intellection very slow. Appears dazed. Cannot protrude tongue, but, after repeated urging, and with assistance, opens mouth. Obeys certain requests, but only after much urging can he be induced to respond. Takes dynamometer in hand, after much effort to make him understand, but no evidence is obtained. Friends know by his actions and sounds when he desires to obey the calls of nature. No essential change in his condition on the 23d. Pulse 64; temperature 100.5. Surface temperature one degree lower in right palm.

February 24.— Convulsions as before. Intellection very slow. Cannot talk or protrude tongue. Takes pencil, after

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much apparent endeavor to comprehend, but gives it back. Pulse 59; temperature 99.5.

February 25.— Had four convulsions during night. Condition about the same. Takes pencil after urging, looks at it in a dazed manner, but does not attempt to write. Pulse 80; temperature 98.5.

February 26.— Resting nicely. Has had no convulsions in thirty-six hours. Intellection slightly improved, as evidenced by responses to requests being performed without so much hesitation. Congestion of right hand and arm gone. Surface temperature, which has continued one degree lower on right palm, is now one degree higher than that of left. Pulse 76; temperature 99.5.

February 27.— Is improving. No convulsions. Attempts to speak, but utters unmeaning sounds. Is apparently irritated at his ineffectual efforts. Is said to have uttered words. Surface temperature one degree higher on right palm. Pulse 80; temperature 99.

February 28.— Had two slight convulsions in the morning. Is more intelligent. In response to question, as he was restless and appeared to be fighting last night, indicates by nod that he has hallucinations. Indicates in same manner that he remembers events occurring before injury, but it is questionable how much can be relied upon. Surface temperature one degree lower on right palm. Pulse 84; temperature 101. No ascertainable cause for increased temperature.

March 1.— No more convulsions. For the first time puts out tongue in response to request. Cannot indicate correctly watch, knife, or pencil, when shown and name given. Says "Yes" to everything. Is very irritable during examination. Gets up to have head dressed, when requested so to do. Attempts to write his name. [Specimen of writing here shown.] Appears to comprehend his errors, to some degree, and appears highly incensed thereby, putting away pencil and paper and refusing to write more. Repeats words indistinctly after me, but cannot again repeat them without my pronouncing them.

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Uses dynamometer. Readings of right and left hand nearly equal. Pulse and temperature normal.

March 2.—Cerebration slow, but improving. Puts out tongue, when asked. Cannot pronounce his own or his sister's name, but indicates by nod and smile that he knows them. Can correctly indicate, by sign, my watch, knife, and other things shown him. Has made frequent attempts to express himself, and is very angry at his failures. After much mumbling with disjointed words, attempts to express that walk will do him good, and is much pleased when at last is understood. [Specimen of handwriting, No. 2.] Says thickly, with shake of head, "Know how." When asked if he does not know how, assents, but will talk no more nor submit to further examination.

March 3.—Patient much improved. Has shown much interest in things around him. Made sign for paper, and studied it intently, but it is found that it is as liable to be upside down as otherwise. Is said to have used words in connection. Attempts to write name [specimen No. 3], but is angry when he cannot. Resists all further attempts at communication.

March 4.—[Specimen of handwriting, No. 4.]

March 6.—Has improved greatly. Talks little, but is understood without difficulty. Makes sign for beer standing near; when given him, offers glass to me. It is noticed that he substitutes words; says "shoots" for his shoes. Walks about house without assistance. [Specimen No. 5.]

March 9.—Improving daily. Talks intelligently, but occasionally hesitates and substitutes words. Cannot remember anything of events at time of injury or during sickness; shows disinclination to talk about it. Attempts to write his name [specimen No. 6], which apparently interests him. He says he knows what he desires to write. Says, "It's funny I can't write; there are too many letters." He evidently cannot, at will, use the term *chair;* always says "stool." Still calls his shoes "shoots." Speaks somewhat thickly.

March 21.—Talks intelligently, but is very reticent as re-

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lates to everything connected with his injury. Upon second attempt writes his name correctly, as seen in specimen No. 7. Discharged.

He soon after resumed his position, and, I am afraid, his old habits. His friends say he is changed in his disposition and customs; is more irritable. He has grown slovenly, and very indifferent to the usages of society; but it is questionable whether this is more than the natural result of his long-continued dissipated habits. They think he occasionally substitutes words, and that he is more hesitating in his speech at times; but, beyond this, they see no difference in his intelligence.

I believe that in this case there was a contusion of the brain in the region of the left anterior lobe, the result of contre-coup. Before discussing the phenomena presented in this case, I would invite attention to the opinions of the later writers in reference to encephalic contre-coup lesions. Until very recently, the term *contre-coup* has been usually applied to certain fractures of the cranium; however, with the advances made in exact observation in the department of cranial and encephalic injuries, and with the criticism of the doctrines of concussions of the brain and the substitution therefor of contusions and other lesions capable of more or less exact demonstration, the term has been extended to a well-defined class of cases coming legitimately within its scope. Please consider the encephalon, its structure and relations to the cranium, and its consequent capabilities of receiving injuries in this manner. Page, in his recent work on "Spinal Injuries," thus describes it:

"The cerebral mass, a large, soft solid, surrounded by envelopes, or membranes, fitting closely to and filling up the crevices and grooves in the skull, which is its protection and covering: an organ so built and placed that it must be liable to commotion from any blow of sufficient force upon its osseous case." *

* Page, Spinal Injuries, p. 28.

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That the brain may receive severe injuries of this kind, has not, in time past, escaped observation. Thus Trosseau, in his "Clinical Medicine," records the following case, reported by M. Peters:

"A drunken cavalry soldier fell from his horse, on the back of his head, and fractured his skull. . . . The most remarkable fact was, that though the man had fallen on the back of his head, as was shown by the bruising of the soft parts and the starred fracture of the occiput, the brain was not injured at that part, whilst its anterior lobes were in a pulpy condition through a most violent contusion, evidently caused by the knocking of the cerebral mass against the anterior portion of the cranial vault." *

However, the frequency of this mode of encephalic injury has not, until recently, been recognized, nor has it attained as prominent a place as would seem its due. Thus Agnew, in his recent work on Surgery, does not allude to the term, except in connection with fractures of the skull, and then deprecates its use. Other modern authorities, however, give great prominence to contusions or lacerations of the brain from contre-coup. Thus Hewitt, in "Holmes' System of Surgery," says:

"Bruising of the brain substance may take place at the spot where the skull was struck, or the bruise may be in a part of the brain far away from the original seat of the injury. The one, then, is a direct contusion, the other a contusion by contre-coup of the brain substance. . . . . Contusion of the brain, however, is rarely limited to the region where the blow is struck, except in cases where the bone has been driven down in a fissure of the skull. It happens much more frequently that the bruised part of the brain is far away and directly opposite to the seat of the blow. In severe injuries, both kinds of contusion, direct and by contre-coup, are sometimes found in the same brain." †

Again, in speaking of cerebral abscess:

"But cerebral abscesses sometimes form on the side of the brain opposite the part of the head that is struck, in consequence of injury by contre-coup." ‡

* Trosseau, Vol. II., p. 265.

† Holmes' System of Surgery, Am. Ed., Vol. I., p. 647.

‡ *Id.*, p 669.

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"Erichsen's Surgery," edition 1878, says:

"The substance of the brain may be contused or lacerated by blows upon the head. This is most common at or under the seat of injury, or it may occur as the result of contre-coup at an opposite point in the same, or even in the opposite cerebral hemisphere. Being struck on the right side of the head, the patient may suffer from contusion of the opposite part of the left hemisphere, or *vice versa;* or a blow on the occiput may occasion laceration of the anterior part of both lateral lobes. In these injuries of the cerebral substance we have many of the symptoms that are characteristic of cerebral irritation; but, in addition to them, there is occasionally more or less coma, in consequence of extravasation of blood, or there may be paralysis, facial or hemiplegic. In other circumstances, or possibly associated with these conditions, there may be convulsive movements more or less epileptiform in character. This may be confined to the face, it may extend to the paralyzed limbs, or may occupy both sides of the body. The prognosis in these cases is serious, but by no means necessarily fatal. In fact, in the majority of instances, recovery ensues." *

"Injury to the brain may be occasioned in various ways. The simplest form, perhaps, is that which is not unfrequently met with in undepressed fracture of the skull, and sometimes happens without fracture from simple concussion or commotion of the brain; laceration of the cerebral substance occurring under the seat of injury, or more frequently at a distant or opposite point by a kind of contre-coup. This laceration of the brain by contre-coup is by no means of unfrequent occurrence; I have seen many striking instances of it, and have found it to be one of the commonest causes of death in simple fracture of the skull. Laceration of the brain by contre-coup is attended by much extravasation of blood, and after death the brain substance is found mixed up with coagula, and forming a soft, pulpy, bloody mass. In most of the instances I have seen, the anterior lobes have been those contused, lacerated, and disorganized. This accident may occur without any fracture of the skull, or external signs of injury, and usually results from falls upon the back or side of the head, often from an inconsiderable height, as when a person slips up suddenly in

*Erichsen's Surgery, Ed. 1878, Vol. I., p. 519.

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frosty weather, and strikes his head on the pavement, the anterior portions of the hemispheres of the brain, or parts opposite to the stroke, will then be found in the condition just described." *

This evidence is quite sufficient to establish the frequency of contre-coup lesions of the brain, but I will cite two more of our later authorities. John A. Liddell says:

"Whenever contusion of the brain is produced, the lesion of the brain substance is usually found either underneath the scalp wound—*i. e.*, directly underneath the external point of impact, or on exactly the opposite side of the encephalon. The latter often occurs, and is truly said to be caused by the contre-coup. . . . It is of some practical importance to know that contusions of the brain from contre-coup are very frequently met with in cases where the injury has been caused by falling on the head. . . . If I were to judge from my own experience, I should say that, in a large majority of the instances where contusion of the brain is produced by falling on the head, it is caused by the counter-stroke, and presents itself on the side of the head opposite to that which receives the blow." †

He cites two cases, with autopsy, occurring in his own practice. Page, in classifying concussion injuries of the brain, says:

"Cases where the early symptoms of concussion proper are of longer duration, later pain, irritability, etc., are slow to pass away; and where there may not be, although undoubtedly there very often are, definite structural lesions of the brain substance at a point remote, it may be, from the part struck, lesions by contre-coup, which, of themselves, may give rise to no symptoms." ‡

He also cites a supposed case of recovery from contre-coup lesion. § It will be noted that both Liddell and Hewitt express the opinion that lesions by contre-coup are most frequent when unattended by fracture, and that the injury to the

* Erichsen's Surgery, Ed. 1878, Vol. I., p. 548.

† Liddell, American Journal of Medical Sciences, July, 1883.

‡ Page, Injuries of the Spine, p. 26.

§ *Id.*, foot-note, p. 23.

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encephalon is directly opposite the impact of the impinging force.

Having premised thus much in reference to a question which has a practical bearing upon the diagnosis, we may consider some of the interesting features of this case. A man falls from a height; he sustains an injury on the right posterior aspect of the skull. Two days later, if not before, he develops convulsions, limited to the right side of the face and right arm, becoming more general, but not followed by paralysis. Intellect is much impaired, but gradually improves. Is aphasic. No rise of temperature or change of pulse occurs, which might not arise independent of cerebral lesion, and they speedily resume their normal standard. What has occurred in the brain? Have we not here an injury capable of more or less accurate diagnosis, not only as relates to the nature of the injury, but its location? We may best reach the diagnosis by exclusion. Leaving out of consideration the term *concussion*, as too indefinite, we may exclude fracture of the skull. There is an absence of the ordinary signs of compression from extravasation. It is scarcely credible that extravasation of blood alone could be so limited as to produce the localized phenomena observed. There is an absence of the ordinary signs of meningitis or encephalitis, and the conclusion we reach is that there must have been a localized injury, probably a contusion of the cerebral convolutions, in the region of the anterior lobe of the brain, from contre-coup. I would recall the observations of Liddell and Hewitt, who state that the lesion is either directly underneath the scalp wound, or on a point directly opposite, from the counter-stroke. Consider the situation of the scalp wound, three and one-half inches above the auditory meatus, extending posteriorly three inches. "Quain's Anatomy" says:

"The bifurcation of the fissure of Sylvius corresponds to a point one inch and a quarter behind and a quarter of an inch above the level of the external angular process. From this point the anterior limb of the fissure ascends almost vertically for nearly one inch, while the posterior limb runs backwards

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and a little upwards for a distance of about three inches, and terminates beneath the parietal eminence. The upper end of the furrow of Rolando is placed about half an inch behind a point midway between the root of the nose and the external occipital protuberance; its lower end is close to the posterior limb, and about an inch behind the bifurcation of the fissure of Sylvius." *

Does not this evidence clearly point to the direct transmission of the force of the blow to the vicinity of the island of Riel, the lower frontal and ascending frontal and parietal convolutions? If we accept the modern doctrines of cerebral localization, the convulsions of the right side of the face and right arm, and the ataxic and amnesic aphasia, point to lesions of these parts. Nearly twenty years ago, Hughlings Jackson pointed out that convulsive movements of one side had their origin in the cortical matter of the opposite side. Richet says:

"Lesion of the cortex cerebri may produce paralysis or convulsion, according as the lesion is destructive or irritative. . . . The convulsive centers coincide absolutely with the motor centers." †

Commencing with the labors of Ferrier, Fritsch and Hitzig, Charcot and Pitres, together with many subsequent observers, it has come to be accepted that the so-called motor zone embraces the para-central lobule, the ascending frontal and parietal and the foot of the frontal convolutions. These apparently stand in intimate relation to the movement of certain muscular groups on the opposite sides of the body. These so-called motor zones are not apparently subject to exact limitation — at least not in the present condition of science. Richet says:

"Absolute inflexible localization of the motor zones is all but impossible." ‡

Concerning the practical bearings:

* Quain's Anatomy, Ed. 1882, Vol. I., p. 668.

† Richet, Histology and Physiology of the Cerebral Convolutions, p. 99.

‡ *Id.*, p. 88.

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"It is of no special importance to know if there is a center for the ear, and exactly how many milimeters it is distant from the center; that which is important is to know if there certainly are centers for certain determined movements." *

Charcot says:

"The anterior lobe deserves particular notice, and may be called the department of the giant pyramidal cells, or the motor cells *par excellence*. This department embraces the entire ascending frontal convolution, the superior extremity of the ascending parietal convolution, together with a part . . under the name of para-central lobules, and which is situated upon the internal face of the hemisphere at the extremity of the ascending convolutions." †

The following are the conclusions of Charcot and Pitres:

"The cortex cerebri is not functionally homogeneous; only one part is concerned in the regular exercise of voluntary motion. That part which may be called the cortical motor zone includes the para-central lobule, the frontal and parietal ascending convolutions, and perhaps also the foot of the frontal convolutions.

"No cortical lesions, whatever their extent, situated outside the motor zone, affect the power of motion. On the other hand, destructive lesions, even very limited, which affect either directly or indirectly the motor zone, necessarily entail disturbance of voluntary motion." ‡

In reference to the different parts of this zone which stand in relation to certain sets of muscles, a larger number of exact observations are needed to determine the question, as one will discover speedily, if he consult different authors, or study reports of autopsies bearing on these points. The following are among the results obtained by some of the most careful observers:

Charcot and Pitres reach the following conclusions:

"The cortical motor-centers for the opposite limbs are situated in the para-central lobule and in the upper two-thirds of the ascending convolutions; and the centers for facial

* Richet, Histology and Physiology of the Cerebral Convolutions, p. 89.

† Charcot, Localization in Diseases of the Brain, p. 23.

‡ Richet, Histology and Physiology of the Cerebral Convolutions, p. 93.

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movements are situated in the lower third of the ascending convolutions, in the neighborhood of the fissure of Sylvius. It is probable that the center for isolated movements of the upper extremities is located in the middle third of the ascending frontal convolution."

In the April number of the *Alienist and Neurologist*, Tamburini gives the history of a case in which he located a lesion which was remarkably confirmed by autopsy; and as he therein gives the results of later researches, I will quote from the record of the autopsy:

"In fact, the lesion of the ascending frontal convolution, which was least in its upper part [the center for the movements of the limbs — arms and legs], greater in the middle part [the center for the movements of the hand], and in the inferior part [the center for the movements of the face] gave the reason for the hemi-paresis of the whole of the right side, more conspicuous in the arm and face. The extensive lesion of the third frontal convolution [the center for the motor memory of language] explained the amnesic and ataxic aphasia; finally, the lesion in the foot of the middle [second] frontal, just in front of the center for the movements of the hand, might explain the agraphia, and serve, at the same time, to confirm the idea that in this point the center for the movements in writing has its seat."

In the case occurring under my observation, it is probable, from the supposed direction of the force, that the main injury was to the lower parts of the anterior lobe, though the whole lobe may have been more or less contused. I infer this from the fact that the convulsions were at first limited to the face (the "choking-spells" mentioned by friends), gradually involving the centers of the arm and leg, it may be, first, by the irritation caused by necessary exudates in process of repair.

As perhaps corroborative of this view, I would cite the experiments of Viel, who used injections of nitrate of silver. "At the onset," says Viel, "there are only the varied symptoms of ataxia. . . . When inflammation supervenes, the attacks become clearly epileptiform." * It will be seen that

* Richet, Histology and Physiology of the Cerebral Convolutions, p. 96.

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the convulsive phenomena began about the supposed time of inflammatory stage of repair. Second — more likely, perhaps, on the hypothesis of excessive functional discharge of gray matter, extending to the other centers, as put forward by Hughlings Jackson.* Fritsch and Hitzig note this fact in confirmation of the latter view. "These convulsions at first confined themselves to the muscles responding to the cerebral region excited, then became more general, and extended so as at length to become truly epileptiform." †

A query as to the mental condition of my patient in the earlier stages affords some interesting questions. Although it might seem that he possessed the use of centers presiding over volition, yet I could not resist the impression that, the greater part of the time, the higher functional centers were practically in abeyance, and the most of his actions were automatic. He was perfectly quiet when undisturbed, unless prompted by the calls of nature or some external stimulus. Much effort was required to obtain any desired action, as though the impaired nerve-centers were rarely capable of registering impressions or transforming them into motor impulses. He would, after much coaxing, take an object in his hand, but no sign of intelligence in the act was perceptible. Hammond has shown that a decapitated frog will swim around objects after touching them, and I would regard the earlier movements of my patient as of a similar reflex nature. His mental condition is perhaps better understood through the aphasic phenomena and the gradual evolution, so to speak, of the faculty of language. Richet says:

"Aphasia is not a phase of motor paralysis. The muscles of the tongue, larynx, and velum palati retain their power of contraction, and their functions are unaltered. The trouble is a loss of ideo-motor coördination. There is neither dementia nor paralysis; the defect is neither of intellection nor motion, but of the bond which unites the two — it being the effort of intellection which induces motion. Meynert was the

* Reynold's System of Medicine, Vol. I., p. 281.

† Richet, Histology and Physiology of the Cerebral Convolutions, p. 95.

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first to describe the lesion of aphasia as a fracture of the psycho-motor centers. The term *psycho-motor* seems excellently applied to aphasia; it is not a motor-center, like the ventricle of the gray substance [fourth] which is the motor-center of respiration, nor is it yet a psychic center, since there is motor paralysis: it is a psycho-motor center." *

At first it is questionable whether my patient had any ideation. At a later stage he was unable to associate his ideas with the proper thing. He said "Yes" to each object shown—amnesic aphasia. At a still later stage he was unable to connect the word with the idea. He had lost the memory of language, though he could associate the word with the idea when it was pointed out to him. Still later he was able to properly clothe his ideas with words but imperfectly, and with hesitation—ataxic aphasia (verbal paralysis of Tamburini). These phenomena indicated to my mind that at first the centers concerned in ideation, either directly or by inhibition, had lost their function. As they resumed this gradually they were in such a disordered condition as not to be able to coordinate with each other, and finally these centers for a long time could not establish their proper relations with the centers presiding over the muscular apparatus governing vocal expression. As to the seat of the center of speech there is some question; but it is generally conceded that an injury to the foot of the third frontal convolution, or of the island of Reil, usually accompanies its disorders, and there is good ground for believing that some of its varied forms, ataxic or amnesic, ofttimes indicate approximately the seat of the lesion. Thus Hammond says:

"The gray matter presides over the idea of language, and hence over the memory of words. When it only is involved, there is no hemiplegia and there is no difficulty of articulation. The trouble is altogether with the memory of words. . . . . The corpus striatum contains the fibers which come from the anterior column of the spinal cord, and is besides connected with the hemisphere. A lesion,

* Richet, Histology and Physiology of the Cerebral Convolutions, p. 107.

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therefore, of this ganglion, or other part of the motor tract, causes paralysis of this part of the body. The cases I have detailed show, without exception, that the power of coördinating the muscles of speech is directly associated with this hemiplegia. A lesion, therefore, followed by hemiplegia and ataxic aphasia indicates the motor tract as its seat." *

That the derangement of the motor centers may not be so disordered as to give rise to perceptible paralysis is often observed, and is seen in my case where the tongue did not deviate to right or left; nor was there evidence of other paralysis, yet his speech was thick and hesitating, probably from improper coördination of cortical centers, as it is improbable that the lesion could involve the motor tract without perceptible paralysis. Tamburini, in the *Alienist and Neurologist* for 1884, already quoted, in speaking of amnesic and ataxic aphasia when coëxisting, says:

"Now this form of aphasia, which is most frequently met with, is at present, by universal consent, held to be dependent on lesion of the third frontal convolution, especially of the left side, and precisely in the foot of this convolution and the adjacent part of the ascending frontal convolution, which is more especially the motor center for the muscles that serve in phonetic expression."

As to the ataxic agraphia or disgraphia in this case, at no time, not even at the first attempt, did it amount to an inability to form letters or the semblance of a word. It was unfortunate that his peculiarities stood in the way of more perfect investigation, as he usually grew angry at the first attempt, and would refuse to write more. In relation to the situation of the hypothetical center for coördination of movements in writing, Tamburini says:

"Now, though nothing is yet known with certainty regarding the region of the cortex, which should be the center for the motions in writing, yet this much may be asserted: *First*, that the center of coördination of written words, though intimately connected with that of spoken words, since both forms

* Hammond, Diseases of the Nervous System, p. 217.

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of expression are frequently affected together, should have a distinct seat for itself (Marce Kussmaul), because it is not rare to meet with the lesion isolate; *second*, that the cases observed by Exner render it very probable that, as the co-ordinating center of speech (the foot of the third frontal) is found in immediate contiguity with that for the muscles (facial, lingual, etc.) which act in the expression of words (the inferior portion of the ascending frontal), so, also, the co-ordinating center of writing should be found in immediate contiguity with that for the movements of the hand, which is the executive organ of writing; and hence, as this center is situate in the middle part of the ascending frontal convolution, the center for writing may be found in the foot of the middle (second) frontal convolution, which is immediately continuous with the ascending frontal."

After a survey of such literature as is at my command, I have been able to find but one case of aphasia from supposed contre-coup lesion. It is reported by D. V. Dean in the *Alienist and Neurologist* for April, 1882. It was caused by a fall, striking the right temple on the curb-stone. When helped up the patient could not speak, but was able to walk and to wash his own face. He developed a slight paralysis of the right side on the second day. He left the hospital against advice one month from admission and six weeks from the time of injury, having nearly recovered.

DISCUSSION.

Dr. Peck complimented Dr. Greene's paper as ably discussing a branch of pathology not well understood. He expressed the opinion that there is no such condition as cerebral concussion, pure and simple, and that the term is a misnomer. Whenever, after the receipt of blows upon the head, symptoms arise, such as aphasia, delirium, paralysis, coma, there is always lesion of brain tissue or its meninges somewhere; barring, of course, in this discussion, the idea of fracture. Contusion and laceration are terms that should be substituted for the meaningless word *concussion*. Fracture of the skull, or contusion of the brain by contre-coup, are also terms that

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should be expunged from our surgical nomenclature, as, to the speaker's mind, they were physical impossibilities; and that in every case of contusion of brain distant from the receipt of injury the force was transmitted across the brain, and not due to a recoil from the opposite side.

The speaker reported a case in which a man received an injury on the cranium, producing aphasia, and, on account of a misunderstanding of the nature of the case, was sent to an asylum as insane. Finally it was discovered that the man was sane, but had only lost the power of speech, which fact had led to his incarceration. He was, of course, discharged; but the case illustrates the necessity of great care in committing patients to an insane asylum after receipt of injuries about the head.

IV.

CHLOROFORM ANÆSTHESIA IN RETENTION OF URINE.

By B. McCluer, M. D., *Dubuque.*

Case 1. May 28, 1871, I was called to visit Mr. Patrick Connelly, residing ten miles in the country. On my arrival I found it to be a case of retention of urine, and in the care of Dr. I. S. Bigelow, of this county.

History: Patient about 65; Irish; a farmer, and healthy. He had been in the city on Friday, returning home Saturday. Had drank some, but not to intoxication. While on his way home was caught in a short rain-storm and became quite wet. Desiring to urinate soon after reaching home, he found it impossible to relieve his bladder. He made various efforts, as the desire to micturate was almost constant, and the pain soon became very severe, but he could accomplish nothing.

Dr. Bigelow was sent for. He passed a catheter into the bladder, as he thought, but no urine flowed. The Doctor re-

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moved his instrument and examined it to see that it was clear, thinking that it might be choked. Finding it clear, he passed it again and again, without relief to his patient. Sunday morning I was summoned, and, hearing the history of the case, presumed that I could afford relief to the patient by catheterization. Selecting an instrument of good calibre, I introduced it into the bladder without any difficulty, but no urine flowed. I withdrew it and examined my instrument, reintroduced it, and felt it certainly in the bladder, which extended to near the umbilicus, but without any urine following—the patient suffering severely; and, to make the history short, after failing entirely to relieve the patient, I said to Dr. Bigelow and a brother belonging to the order of Trappist, who was present, that if I had some chloroform I would relieve the patient immediately, by perineal cystolomy, as he would certainly die unless relieved. The brother said that they had some at the monastery, about a mile distant, and that he would go there and bring it to me if I would get ready to operate, and thus relieve him. He procured the chloroform, and I placed the patient upon a table under a tree in the yard; secured his hands to his feet, as if for lithotomy; introduced the catheter again, intending to use it as a staff to cut upon; began the administration of the anæsthetic. As soon as anæsthesia was fairly established, the urine began to flow both through and around the catheter, and the bladder was fully relieved.

Case 2. August 29, 1875, Mr. M. Lally, a tailor by trade, some 65 or 70 years old, Irish born, living in this city, finding it impossible to pass his urine, and suffering great pain, sent for Dr. George M. Staples, of this city, to relieve him. Dr. Staples, as I was informed by the patient and his son, an intelligent man of some 25 or 30 years of age, made various efforts to relieve him by the catheter, but without success; and finally informed the patient that he was mistaken, and that there was no water in his bladder. Dr. N. B. Matthews was then called, but not succeeding in his efforts to relieve him, and his suffering continuing, I was called from

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church, Sabbath morning, to the case. I found him as Dr. Staples had left him. I took my catheters, with some chloroform, along with me. Arriving, I found the patient in great pain, lying in bed. I sat him up on the edge of the bed, introduced a catheter without difficulty; but no discharge of urine followed. Calling the son to hold his father up with an arm around his shoulder, and with the other hand to hold the catheter in position, I then administered the chloroform, and, as in Case 1, as the patient came under the influence of the anæsthetic, the urine began to flow, and the bladder was fully relieved.

I do not attempt to explain the result secured in these two cases, but I give the facts as they occurred to me, with the hope that the history of these two cases may be the means of relieving some poor, suffering mortal, when the ordinary means shall fail to secure the result desired, and that, too, without undergoing a severe surgical operation.

V.

ACUTE CATARRHAL PNEUMONIA—A PRIMARY DISEASE.

By G. E. Crawford, M. D., *Cedar Rapids.*

For several years my attention has been called to a class of cases of lung fever, differing in some very important characteristics from ordinary lobar pneumonia, and a disease which is not satisfactorily described in any of the text-books with which I am acquainted; and very frequently not recognized in practice. I might designate this condition by the descriptive term, primary acute catarrhal pneumonia.

The forms of pneumonia were not differentiated, or their pathological differences understood, until within the present generation. Catarrhal pneumonia is a term that is used, in

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some sense, by most modern writers of medicine, but its literature is meager and conflicting. Even so recent and authoritative a writer as Professor Flint does not use the term, and his "lobular pneumonitis" does not at all cover the cases in question. Bartholow gives the best description with which I am acquainted; but he regards it as essentially a secondary disease, and uses the term as another name for capillary bronchitis.

Wilson Fox, in "Reynold's System of Medicine," classes catarrhal pneumonia as a "secondary or intercurrent pneumonia, along with broncho, lobular, disseminated, or vesicular pneumonia, etc., as varieties occurring as complications to other diseases, in contradistinction to acute primary pneumonia."

Juergensen, in "Ziemssen's Cyclopædia," prefaces his monograph of fifty-three pages with this proposition: "Catarrhal pneumonia is always a secondary process."

Niemeyer considers catarrhal pneumonia as a synonym of broncho-pneumonia, and declares it never of primary origin, but always supervening upon a catarrhal bronchitis, or collapse of the lung, proceeding from bronchitis; and its only symptoms consist in modifications, more or less distinct, of the symptoms of the disorder by which it has been produced. He goes on to say: "The disease is most commonly observed as a complication of measles and whooping-cough; but the reason for that seems to be simply that capillary bronchitis occurs much more frequently in the course of the latter complaints than in healthy children. Causes of catarrhal pneumonia, other than those from which capillary bronchitis and collapse of the lung originate, are unknown. We may properly call it a disease of childhood, as it is in childhood that capillary bronchitis and its sequel, partial pulmonary collapse — the precursors and initial stages, as it were, of catarrhal pneumonia— are most commonly seen." This is a fair resume of Niemeyer. That this condition, which he terms catarrhal pneumonia, is frequently met with, as complications of these various diseases, no one doubts.

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But the object of this paper is to claim that there is such a disease as primary acute catarrhal pneumonia, differing, as I stated in the beginning, from acute lobar or croupous pneumonia. That it is not a disease confined to childhood, but attacks persons of all ages; but, in common with all other lung diseases, it is more severe and fatal in the feeble and in the two extremes of life. That it is not a rare disease; but, in my experience, it has been more frequent for the past three years than the lobar form.*

I believe that it is very frequently not differentiated. In a typical case in the adult, the initial symptoms do not differ much from those of lobar pneumonia. There is a chill, or chilliness, though not usually so pronounced as the initial chill of lobar pneumonia. Pain, evidently pleuritic, often very severe and distressing, but more diffuse than the stitch of lobar pneumonia, is present — usually referred to one side only, at first, but later the other side is complained of also. Respiration is hurried and painful, and the cough, usually urgent and distressing, attended with expectoration, which rapidly increases, becoming more purulent in character, and generally more or less stained with blood, but not so gelatinous and tenacious as the sputa of lobar pneumonia, although much more abundant. In some severe cases the sputa becomes much like the "prune-juice" of the other form, but always containing large quantities of muco-pus. The disease is bilateral, though one lung is generally worse than the other. The earliest physical signs are the presence of sub-crepitant and mucous rales, and a diminution of the normal vesicular

* This paper was written a year ago, for our local society. During the past winter and spring it has been my observation and that of several of our leading physicians in Cedar Rapids, that, notwithstanding the very general prevalence of simple bronchitis and catarrhal sore throat, etc., lobar pneumonia has been the prevalent form; and typical cases of lobar pneumonia have been observed in smaller children than are commonly subject to that disease. This has afforded a good opportunity to study the differential points of the two diseases, and is also suggestive of the independence of catarrhal pneumonia of simple bronchitis.

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resonance, due to active congestion and engorgement. Respiration soon becomes broncho-vesicular in quality, and as the disease advances it becomes almost or quite bronchial over a large portion of the lungs, with marked broncophony and broncho-phonic pectoriloquy, or ægophony, and increased vocal fremitus.

With this combination of auscultatory signs, we would expect to find dullness, or absolute flatness, on percussion; but such is not the case. The whole thorax has lost its normal vesicular resonance, but over the portion of the lungs most affected the percussion note is distinctly tympanitic, but higher in pitch and more metallic in quality than the resonance from a cavity. Late in the disease circumscribed spots of dullness are found, most frequently in the lower lobes posteriorly. The temperature reaches 104 or 105 degrees, and sometimes 106 degrees, Fahr., without any marked morning remission, unless complicated, as it frequently is, with malaria. Respiration becomes very rapid and labored, with increasing cyanosis. Vomiting frequently, and sometimes diarrhœa, occurs. Cerebral symptoms, in children usually very marked, are always present, except in very mild cases. As the disease advances, in cases tending to a fatal termination, the livid, congested appearance gives place to a deathlike pallor of the whole surface, and the peripheral circulation seems almost suspended; and the surface may feel cool, while the thermometer in the axilla indicates a higher temperature than before. The cerebral symptoms increase. The restlessness is succeeded by somnolence, which deepens into coma, and in children convulsions frequently occur at this stage. Cases of this grade are almost necessarily fatal. A favorable termination is indicated by a decline of temperature, improved respiration, and a quieting of the nervous tension.

The pathology of the disease is not very well understood. There seems to be an intense hyperæmia of the whole mucous surface, from larynx to the air vesicles. An abundant mucous or muco-purulent and sanguinolent secretion is poured out,

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but not of a croupous character. The capillary net-work of the parenchyma of the lungs is engorged, and extravasation and cell proliferation and infiltration is the result. Many of the air vesicles become filled with this sero-purulent infiltration; others are collapsed, and their bronchioles filled with mucus; while others are distended with air to their fullest capacity, as in emphysema; and the remaining, not entirely incapacitated, are violently worked to keep up the failing function of respiration. The appearance of the lung is peculiar. The whole lung presents a red, mottled, and very inflamed appearance, more marked in the dependent portions. It looks a good deal like the affected lobe of lobar pneumonia, in the stage of red hepatization, but it feels differently: it is not hepatized. It has a boggy, spongy, crepitant feeling, and is not so heavy as solidified lung. The whole parenchyma is softened, friable, and easily breaks down under the fingers. Parts of the dependent portions are very dark — almost black. On section, drops of purulent, frothy, and bloody matter ooze out from numerous points all over the cut surface. It would appear to an uninitiated person to be in a state of fermentation and decomposition.

Catarrhal pneumonia is a much more serious disease than lobar pneumonia — more serious because the mortality is greater, and because it is more likely to do lasting or permanent damage to the lungs. The danger is in direct proportion to the extent of the pneumonic process and a diminution of the powers of resistance of the patient. The duration of the disease is somewhat variable, but the milder type of cases which recover run about the same course as lobar pneumonia — from one to two weeks. Death usually occurs, I think, before the end of the first week, though it may occur much later, and in the aged usually within two to four days. The decline of the disease is usually gradual, although I have seen cases end by marked crises. There is much prostration and great tendency to failure of the heart. The indications for

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treatment in catarrhal pneumonia are much more important than in lobar pneumonia.

Doubtless many cases may be aborted, or at least greatly modified, by prompt and judicious treatment at the very beginning. Diaphoretics and aconite, or veratrum viride, followed by a full dose of quinine, and Tully's or Dover's powder, and enveloping the whole chest in a hot flaxseed poultice, mixed with mustard, I believe to be the most effectual. This may be followed by belladonna and digitalis, in turn or in combination. As the disease rapidly tends to prostration, heart sedatives should not be given except in the beginning of sthenic cases. As the disease advances, the various preparations of ammonia are undoubtedly of service, especially the aromatic spirit, which is my favorite, and the carbonate. Bartholow puts great stress on the iodide of ammonium. My experience with it has been limited, but it seems reasonable that it would be a valuable agent in the later stages of this condition. Emetics are recommended by some authorities. They may be at times serviceable in children, but must be used with discretion. As the disease tends to rapid prostration, stimulants are generally well borne, and are of great value. After the disease gets thoroughly under way, I believe the best that can be done is to support the system, and make thorough use of the hot poultices, containing a little mustard. In conversation, recently, with a prominent physician, on this subject, he remarked that he had about "ten times as much faith in local applications in these cases as in anything else."

The best mode of relieving the urgent symptoms of carbonic acid poisoning is to produce free perspiration with the hot pack. Wrap the patient in a sheet wrung out of hot mustard water and roll him up in blankets and allow him to remain from a half hour to an hour, while water and whisky is freely administered. The cerebral symptoms are diminished, the respiration is improved, and the temperature is reduced several degrees.

It is the common idea that profuse perspiration is very

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prostrating. I do not think that it is, when fluids and stimulants are given; and certainly when the system is becoming overwhelmed with carbonic acid or other poisonous excreta, the good effects much more than compensate for the bad, if any exist. When the acute symptoms subside rapidly, or by crises, as they sometimes do, the patient is usually left in an exceedingly prostrate condition, bordering on collapse. In this condition the common routine practice of giving quinine and whisky in large doses may be overdone; the large doses of quinine increasing the nervous prostration, and the large doses of whisky diminishing the already abnormally low temperature by retarding tissue metamorphosis. These remedies should be given in small, frequent doses; or, better, small doses of aromatic spirit of ammonia and Hoffman's anodyne and digitalis; or, best of all, small doses of belladonna or atropia. This last agent will, I believe, tide the system over this "Valley of the Shadow of Death," and restore the heart power and capillary circulation, when any other means would fail.

DISCUSSION.

Dr. Jenkins thought the author was correct in stating that the standard medical works were vague in their statements as to the nomenclature and pathology of this disease. There must be capillary bronchitis and collapse of lobules before the disease can be pronounced catarrhal pneumonia. In addition to this, there will also be found inflammation of the lung tissue proper. The pulmonary inflammation is usually secondary, although it may be primary. He would agree with the author, that catarrhal pneumonia is frequently a primary disease. The prognosis is always somewhat doubtful. Reabsorption and resolution of exudation is frequently a tardy process, and sometimes it is never completed, resulting in pulmonary phthisis. The initial symptoms are not so pronounced as in croupous pneumonia — the chill is slight, pain not so acute, and more diffused. The disease does not terminate by crisis.

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Owing to the fact that the disease more frequently occurs in young or aged persons, or persons otherwise debilitated, he would never use arterial sedatives in treatment. On the contrary, treatment must be sustaining from the beginning. Quinia, ammonia salts, stimulants, are always indicated. In addition to these, occasionally an emetic is required to clear the mucus from the bronchial tubes, in order that the entrance of air may be obstructed as little as possible, as the oxygenation of the blood is much interfered with. Externally, the mustard jacket, followed by flaxseed, and hot pediluvia, are indicated.

DR. MCCLURE.— Capillary bronchitis, or catarrhal pneumonia, frequently follows measles, and becomes one of the most formidable complications we have to deal with, resulting fatally in many instances. Agreeing, in the main, with the treatment suggested by the author of the paper and Dr. Jenkins, he would further suggest the use of digitalis and strychnia as important remedies — the former as a stimulator of the heart muscle, and the latter as a stimulant of the respiratory center.

DR. BLANCHARD.— The most important point in the discussion of this paper is the question as to whether catarrhal pneumonia ever exists as a purely primary disease. Undoubtedly it does. but it would seem to me not so frequently as the author would indicate. In the great majority of instances it is secondary, or arises as an intercurrent process of some other disease, especially measles and whooping-cough.

In defining the disease, terms used are somewhat conflicting — capillary bronchitis, lobular pneumonia, catarrhal pneumonia, etc. The disease commences first in the bronchial tubes, and then extends to the vesicular structure of the lungs. Owing to the total occlusion of many of the bronchi, there is collapse of lobules of the lung; hence the origin of the term lobular pneumonia. As to treatment, there is pretty general agreement. He would not differ from the course already suggested.

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VI.

TREATMENT OF DIPHTHERIA.

By William Davis, M. D., *Mapleton.*

Lord Bacon has said that "Medicine is a science which hath been more professed than labored, and yet more labored than advanced — the labor having been more in a circle than in progression; for I find much iteration, but small advancement." Perhaps this is more true of diphtheria than of any other disease which we are called upon to treat; and in many ways is this particularly true. In reading up the literature of diphtheria you will be amazed with the sameness of treatment by all authors from Hippocrates down — not much new and but little advancement. Galen and Hippocrates have left to posterity as able dissertations on the disease under consideration as any of the authors of the present day. An Indian physician coeval with Pythagoras, in his "System of Medicine," has left a very graphic history of the malady as it appeared in his day. Barring the use of the microscope, the pathology was as well understood by them as by the pathologist of to-day; and their treatment, in the main, was just as rational. Thus we see that this disease was well known four hundred years before the birth of Christ; and when we think of a malady that has afflicted humanity for two thousand four hundred years, and no great advancement made in its treatment, the assertion of Lord Bacon is more significant. And we have no claims upon humanity with which we can properly defend ourselves against censure and ridicule by the laity.

I will not enter into the pathology of the disease, as I could throw no new light upon the subject, nor would I ask your indulgence to weary your patience, for each one can pursue that subject at leisure in his own library. Its pathology is as yet not well settled. But perhaps the research of Pasteur will in time bring to light the true pathology, and that is "bacteria."

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If the theory of Pasteur be true, the treatment of the disease under consideration has been very wide of the mark. It has been like the hunter who, seeing the deer, would bring his rifle to his shoulder without taking aim, close both eyes and pull the trigger; after the discharge of his piece he would open his eyes and wonder why he had not killed his game. For these long years diphtheria has been treated with the same aim, and with about the same results. During my professional career I have witnessed two very severe epidemics of diphtheria. Early in the first epidemic I was convinced of the utter inefficacy of the treatment of the malady, as laid down in our works on practice. I searched and examined all authorities on that point, and I was surprised at the sameness of treatment, from Hippocrates down. And the much-vaunted remedies of other practitioners — those with which they had the best success — were used in the decline of the epidemic, when, as every practitioner well knows, the rate of mortality is far less from natural and hygienic influences than in the beginning or middle of an invasion. I then concluded to try remedies not in the beaten track. I no longer took the old landmarks as my guide. I struck boldly out for sea. I deserted the old hulk, for in it lurked disaster and death. I began to search for something more satisfactory, and I think I have found it, if success is to be judged by the rate of mortality.

I discarded the use of potassæ chloras, and deny its remedial effects in diphtheria. Hutchinson says that it increases the ulceration of the mouth and throat. Some authorities assert that its action is purely local, and you get its full effect by its topical application. Another author says its influence, if any, on the organs of the body is unknown. As this salt so easily parts with its oxygen, and as the venous blood under its use has the appearance of arterial blood, hence the opinion that it increased the oxygen of the blood and tissues. But careful observation has proved conclusively the contrary of this view, as this salt can be obtained unaltered from the urine. I claim that potassæ chloras should not be given in diphtheria

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at all, and for these reasons: First, we have albuminuria; potassæ chloras increases this abnormal product. Second, it has a tendency to produce suppression of the urine; hence we may look for nephritis; and too many cases are on record to controvert this fact. Within the past two years it has been excluded from the Children's Hospital in Vienna, in the treatment of diphtheria, and has been especially cautious against the danger of giving it to young children. Iron, if I use at all, is in the earlier stages, and it is as a topical application, and in the form of pernitrate solution. The reason for this is obvious. Quinine is only to be given when the temperature is high and there is much headache and vomiting; and the above are the only special indications for its use. It is not required in every case, and, when given, it should be in very large doses; and if you fail to get any good results in from thirty-six to forty hours, you should not persist in its use, as you are only taxing an already weakened heart with an extra amount of labor. Quinine in such doses produces paralysis of the motive power of that organ, and makes your case more hazardous. When the skin is parched and the tongue dry, it should not be given at all. Why? Because we have vascular excitement; hence the arrest of the secretions. In this condition, quinine has a tendency to increase these symptoms, and prevents nutrition and assimilation. It particularly excites the ganglionic and nerve centers; and you will observe in many cases that the sympathetic nerves are not only excited and irritated, but there is involuntary contraction of the muscular tissue. In such cases what should we do? Use a proper sedative for the vascular excitement, and a diaphoretic for excitement of the nerves. Have we those remedies at hand? Yes, in mercurous iodide and jaborandi.

The treatment I commonly pursue in this grave malady is as follows: First, I use quinine as above described. Second, my main reliance is upon the following remedies, which I know from past experience have served me true and faithfully; and they are protoiodide of mercury, arsenic in the form of

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Fowler's solution, and lime water. Protoiodide of mercury I give in doses of from one-tenth to one-fourth grain every two hours. In these small doses it more readily comes in contact with the intestinal fluids, hence more quickly absorbed. By recent observation it has been shown that the action of mercury on the blood illustrates the opinion that it increases the red corpuscles and improves the blood condition. One German observer, having ten patients under treatment, witnessed the increase of the blood corpuscles when one-sixth grain of protoiodide was given. Nutrition is so closely connected with hematosis that we are prepared for the modern idea that the blood may be improved by small doses of mercury, while under large and poisonous doses the blood corpuscles are destroyed, secretion profuse, digestion impaired, and waste of tissue progresses rapidly.

For the destruction of bacterium termo — which, by the way, I believe to be the real pathology of the disease under consideration — mercury stands first on the list, iodine second, and so on. Mercury in the form of bichloride is the favorite remedy for the treatment of diphtheria in Vienna. The iodides of mercury act much like corrosive sublimate, the mercurous iodide being less irritant than the rest. The action of the mercurous should be very closely watched and not induce salivation, for, according to general experience, this promotes rather than checks the spread of the exudation. It is useful in keeping up the action of the secretory organs and relieving congestion, and has a stimulating effect on the nervous system. Under its use glandular enlargement diminishes, the exudation of plastic material is limited, and, as a result, the destruction of false membrane. Unwise as this treatment may appear to many, I feel that it is the most important factor in the restorative process, in the same manner that a drastic purgative to a patient almost moribund with uræmia is the most powerful restorative, and I think in like manner mercury is tolerated in diphtheria. It is therefore necessary to any successful treatment to guard against the increase of exhaustion by every possible means.

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The remedy to be relied upon in conjunction with the mercurous is arsenic in the form of Fowler's solution, in doses of from one-half to one drop every two hours. It should be given in milk, that it may pass into the blood with the hydrocarbons of that fluid. It improves digestion and increases the appetite. You are thus enabled to feed your patient more food, which is essential to the successful treatment of this disease. It is a cardiac tonic, as it gives fullness to the pulse. The intermittent pulse, which you will find in many bad cases of diphtheria, nothing will control more readily than arsenic. Professor Binz says that it "prevents the decomposition of the albuminous substances, and also arrests such fermentative processes as are due to organized ferments." It is found in the blood chiefly with the red corpuscles, and they are enriched by it in their natural constituents. On the composition of the urine it has two distinct actions: *First*, it has a tendency to prevent the urine becoming albuminous, which is a very essential point in the treatment of diphtheria. Under its influence the albumen disappears, vomiting is checked, it removes the dry, inactive condition of the skin, checks thirst, and causes a copious flow of urine, which soon becomes less loaded with albumen. The *second* is that the urea is lessened, and as the carbonic acid separated by the lungs is diminished, we conclude that it also diminishes tissue metamorphosis. It would seem, then, that, according to its dose, it acts as a conservative tonic, or as an eliminative agent; and this interpretation would appear to reconcile its apparently opposite effects. Thus small doses suffice in certain cases of intermittent fever, while larger doses are required by chronic malarial affections. Finally, one observer sums up his observation of arsenic on man and animals in the following language: "It is difficult to discern any relation between them; and the action of arsenic on man, in either poisonous, physiological, or therapeutical doses, if they prove anything, it is that this agent impairs the circulatory and respiratory vigor; whereas the very opposite effects

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are among the most striking as well as the most useful operations of arsenic."

In those cases in which we have impaired enervation of the lungs, which is the cause of fatal termination in so many cases, I take alcohol and ammonia, equal parts, and saturate a sponge with this mixture and let the patient inhale the vapor, and always with decided benefit. Lime-water is to be used as a topical application, in an aspirator and as a gargle. The diet should be milk, cream, eggs. If there is much vomiting, I like the following: Dissolve the whites of two eggs in a pint of water, sweeten with glycerine, and flavor with orange-flower water; give *ad libitum.* Beef-tea, as made in the common kitchen, I never give; the reasons for this are obvious.

VII.

CONTAGIOUSNESS, TREATMENT, AND PROPHYLAXIS OF SCARLATINA.

By George F. Jenkins, M.D., *Keokuk.*

I have thought just at this time, when we seem almost ready to accept the bacterian theory as the most reasonable explanation of the etiology of all epidemic, contagious, and pestilential diseases, it might be beneficial and instructive for us to see what some of the leading authorities say as to the contagiousness of scarlatina, basing their opinions wholly on observation and clinical experience, without pretending to endorse the theory of origin and propagation by a specific germ. Watson, in his recent work on "Practice of Physic," says: "The contagion of scarlet fever is active, but uncertain. It is not so strong, nor as uniform in its operation, as that of small-pox; but it seems peculiarly subtle and tenacious."

"Aitkin's Practice," 1868: "The disease is eminently communicable, so that no susceptible person can remain in the

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same room, and hardly in the same house, without contracting it."

"Flint's Practice," 1881: "The communicability of scarlet fever is established by irrefragible proof; exclusive of inoculation, it is probable that its causation always involves infection."

"Reynold's System of Medicine," 1880: "Contagion is the only known cause of scarlet fever."

"Bartholow's Practice," 1884: "It is communicable by contact of the healthy with the infected, and by inter-mediation of various substances to which the poison adheres. It occurs both in the sporadic and epidemic form, but never arises spontaneously."

"Robert's Practice," 1884: "Produced by a specific poison, scarlatina is highly infectious."

"Bristow's Practice," 1880: "Scarlet fever occurs only as the result of contagion."

"Loomis's Practice," 1884: "The cause of scarlet fever is a contagion, which is transferable from the sick to the healthy. It has been claimed that sporadic cases do occasionally occur; but there is little doubt that if the history of every case of supposed spontaneous scarlet fever could be carefully taken, it would be found that at no place, and at no time, had the disease ever been of spontaneous origin."

"Hillier on Diseases of Children": "The only known cause of the disease is contagion."

"Meigs & Pepper on Diseases of Children": "Our own experience also convinces us that it is a contagious disease."

"Day on Diseases of Children," 1881, after expressing his belief in the undoubted contagiousness of scarlatina, says: "There can be no doubt whatever that medical men sometimes carry it from patient to patient, and so carry it to their own families."

Dr. J. Lewis Smith, "Diseases of Children": "Scarlet fever presents in a marked degree the distinguishing features of the infectious maladies. It is highly contagious, and also inoculable."

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I have only quoted very short extracts from any of the above authorities, all of which go into the subject very elaborately. I might quote from many other recent authorities, who are equally expressed and avowed contagionists. The nearly universal testimony of recent authors and clinical investigators is that this disease is not only epidemic and contagious, but also that its contagious principle possesses very great permanency.

Dr. J. Lewis Smith reports several cases where the contagious principle has remained in houses for several months, notwithstanding careful disinfection was observed.

Sir Thomas Watson narrates an instance in which a strip of flannel remained contagious for at least a year; while Hildebrand was infected by a cloak which, after exposure to the disease, had been put aside for eighteen months. Hence we may assume that the morbific principle of scarlatina is anything but volatile and unstable. I believe it is in consequence of the very great permanency of the scarlatinous virus that we have so many instances of the apparently spontaneous origin of this malady presented to our observation. We are unable to trace the source of contagion, either on account of our careless and superficial investigation, or its obscure manifestation; hence we conclude it originated spontaneously.

This fact was forcibly presented to my mind by a case coming under my observation three years ago. I was called, in consultation with another physician, on February 9th, 1882, to see Philip M., a child two years old. The doctor informed me that he had been in attendance upon the child for the past three days, and that his diagnosis was anginose scarlatina. The symptoms were characteristic and pronounced, and I unhesitatingly confirmed his diagnosis. The child died on the thirteenth day of the disease. The important point is the source of contagion. It seemed obscure, and the parents insisted that the child had been nowhere to "catch the disease." It was the only child in the family; had not been away from home, and there were no cases in the city. We ascer-

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tained that they had lost a child two years before with scarlatina, and that the child was about the same age of this little fellow. This led us to think probably some of the clothing might have been laid away without disinfecting, and saved till this child got to be about the same age, and then put upon him. Upon inquiry, we were told the child had worn none of his brother's clothing. When we called the next day, however, the mother exhibited a little woolen cap, and said this was the only article of clothing that the child had worn recently that belonged to his brother. After further investigation, we found that the child that died two years before had this cap on when he was taken sick; that it hung in the room during his sickness, and that after the funeral it was put away in a closely covered tin box, without disinfecting. The cap had never been out of the box until three days before our little patient was taken sick, when he wore it to a neighbor's and out on the street. We were thoroughly convinced, from all the circumstances, that the contagious principle of scarlatina had been kept in that cap for two years.

I will now report a few more cases coming under my observation, showing not only indisputably the source of contagion, but also fixing accurately the period of incubation, while at the same time they show the disease to be contagious during all of its stages. During the malignant epidemic of scarlatina that occurred in Keokuk in the winter and spring of 1880–81, I treated about eighty cases, and in several of these my opportunity for ascertaining not only the undoubted source of contagion, but also fixing accurately the period of incubation, was excellent. I will briefly state the facts in connection with two or three of these cases. I was summoned on Sunday morning to go six miles in the country to see a little girl of Mr. V., three and a half years old. Got there at 12:30 P. M.; found her suffering from malignant scarlatina; pulse 173, small and weak; temperature 106 degrees Fahr.; tongue dry, dark red, and covered over with dark, tenacious, stringy mucus; throat a dusky red, tonsils swollen and covered in patches with a

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grayish pultaceous exudation; great thirst; vomiting; diarrhœa; scanty secretion of highly colored albuminous urine. Eruption extensive, and out all over the body, but dark, disappearing on pressure, and very slowly returning when the finger was removed; delirium, jactitation, restlessness, with a tendency to somnolency. These symptoms rapidly became more unfavorable, and the child died at midnight, having been sick just twenty-four hours. I have been thus minute in the detailment of the leading symptoms presented in this case, as it is a fair example of malignant scarlatina, as it existed that year.

Now to return to the etiology of this case. There had been no cases of scarlatina within six miles of this house; the children had not been away from home; there had been no one there except a boy about fourteen years old, an uncle of the child. He, four weeks after taking scarlatina, and while yet desquamating on the hands and on the hairy scalp, had gone out there on horseback, riding six miles, during cold, January weather. He got there late Thursday night, after the children had retired; saw this little girl for the first time on Friday morning, when he took her on his lap and was playing with her for a short time, after which he returned home. She was taken suddenly and seriously ill Saturday night, at 1 o'clock. The only other child in the family did not get up in time to see his uncle, but was in the room with his sister Sunday forenoon. I had him taken to his grandmother's, six miles off, and he remained well until after midnight Monday, when he was taken. A homœopathic physician was called — the child died in less than thirty-six hours. I might report several other cases where the source of contagion and the period of incubation were equally fixed and undoubted.

There seems to be great diversity of opinion as to the duration of the period of incubation in scarlatina. This is probably consequent upon the fact that it differs in the different types of the disease, being long in those who come down with the simple form, shorter in the anginose type, and very short —

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from twenty-four to forty-eight hours — in the malignant form. Or, in other words, the period of incubation depends upon the susceptibility of the individual and the virulence and concentration of the poison. In the two cases above given, you will observe it was about thirty-six to forty hours. In the case of Philip M., where the specific germ was kept two years, the incubating period was less than three days. This case was of the anginose type.

These cases also show that the disease is contagious during late desquamation, as well as during the early part of the stage of eruption. The only safe and reasonable view to take is that it is contagious from the beginning of the disease till the last vestige of exfoliated epithelium has been thrown off, or been thoroughly and repeatedly disinfected; also till all other resulting discharges, such as otorrhœa, etc., have been controlled or carefully and continuously treated antiseptically for a considerable period. Scarlatina is always worse in cold than in warm weather; much more dangerous in the north than in the south; also worse every fifth year. Some epidemics are mild and some malignant. When an epidemic starts mild it continues mild. The most severe cases in any epidemic are at its beginning — after it has run awhile it has a tendency to gradually grow milder, and when warm weather comes it generally disappears entirely.

The old theory that the contagion in each disease is a specific chemical compound, probably of an organic nature, and either solid, liquid, or in the form of a volatile gas or mere decomposing organic matter, is rapidly giving way to the more reasonable and scientific theory, called the *germ theory*, or theory of *contagium vivum*. According to this hypothesis, it is affirmed that all contagious diseases arise from the action of *living organisms*, or *germs*, which are specifically distinct from each other in the several individual diseases.

Treatment.— Scarlatina being a specific, self-limited disease, we should make no effort to abort it until we have discovered, by clinical observation or otherwise, some medicinal agent that

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can be safely given in sufficient quantity to destroy the scarlatinous bacilli. The indications of treatment, under our present therapeutical knowledge, are to palliate symptoms, prevent complications, and husband the vital forces. In simple cases, where the pulse is not above 130 per minute, the temperature does not exceed 103 degrees Fahr., the eruption well out, and of a good, bright color, I isolate the patient by putting him in an upper room that can be well heated and properly ventilated, have all superfluous articles of furniture removed from the room, being careful not to make the room look too desolate, believing that by proper care during treatment and thorough disinfection after convalescence I can feel assured that no poison can remain. It depends somewhat on the character of the epidemic as to what age persons become insusceptible, but it is certain that no young person should be allowed to enter the room till after desquamation is complete, and both patient and apartments have been thoroughly and repeatedly disinfected. The diet embraces almost any nutritious, easily digested fluid food, especially milk. If the bowels are constipated, they should be moved by an enema. Purgatives are not given during the eruptive period, unless absolutely necessary, and then calomel is given the preference. Generally the only prescription I give is similar to the following: Tincture digitalis, one drachm; liquor ammoniæ acetas, four ounces. Dose, two teaspoonfuls every three hours to a child five years old, increasing or decreasing the dose according to the age and indications.

This prescription lessens the frequency of the pulse and increases its volume; it reduces the temperature and determines to the surface, thereby causing a better efflorescence. It does more--it increases elimination by both the skin and the kidneys. This is all the medicine I give in ordinary cases, till desquamation is well advanced and the urine has ceased to be scanty, cloudy, and high colored. In my opinion, this treatment greatly lessens the danger of desquamative nephritis, by freeing the tubules of renal epithelium. The only external

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treatment necessary in these mild cases is the morning and evening inunction of the entire body with carbolized cosmoline. This prevents itching and allays the consequent restlessness; it lessens febrile movement and disinfects the entire cutaneous surface. A carbolized gargle, or carbolized spraying of the throat at frequent intervals, is all that is necessary to complete the treatment in these cases.

The treatment of the anginose variety in the early stage, before the tonsils become greatly swollen and the attendant adenitis and cellulitis become extensive, should be similar to that suited to mild cases. When the throat becomes the chief source of danger, which is frequently about the fifth day, when there is probably septic as well as scarlatinous poisoning, I give potassæ chloras, one and one-half drachms; tincture ferri chloridum, three drachms; glycerinæ, two ounces; aquæ, one and one-half ounces. Dose, a teaspoonful every four hours in alternation with the above digitalis mixture.

Generally, in these cases, from the very first, but more especially when septic poisoning sets in and asthenia threatens development, alcoholic stimulants in large and frequent doses are our most important remedies. The throat should be frequently sprayed with potassæ chloras, two drachms; acidi carbolicum, one-half drachm; glycerinæ, two ounces; aquæ calcis, two ounces. Use a good hand atomizer.

In addition to this treatment, if there is membranous exudation, I generally make an application once or twice a day with a swab, using the following mixture: Solution ferri persulphas, three drachms; glycerinæ, two drachms; aquæ, three drachms. This generally removes the membrane and tenacious mucus, and the throat presents a greatly improved appearance.

In the early stage of the disease, when the inflammation is active and the fever high, cold cloths applied to the throat are sometimes grateful and beneficial to the patient; but when the fever is reduced and suppuration threatened, hot cloths covered with oiled silk should be substituted. Whenever the tem-

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perature reaches 103½ degrees Fahr., the child should be put in the tepid pack or tepid bath, if it will tolerate it. Whenever the temperature reaches 103½ degrees Fahr., the pack should be repeated. This treatment can be carried out in private practice, while I think the universal experience of all physicians is that the antipyretic treatment by cold baths cannot be enforced in private practice, because of the antagonism and want of coöperation of the attendants — they stubbornly maintaining that cold will drive in the rash.

In malignant cases, the above recommended digitalis treatment should be pushed more vigorously, and stimulants, quinine, and beef-essence freely given. If nervous symptoms, such as delirium, sleeplessness, jactitation, threatened convulsions, etc., predominate, potassic bromide and chloral should be given, and the antipyretic treatment by the frequent use of the warm pack faithfully carried out. Should this not reduce the temperature below the danger-line, try, in addition, ten-grain doses of quinine, given per rectum, two or three times a day. If gastric irritability is great, give all medicines per rectum, and nourish the patient by beef-essence injections. I have often found one-fourth grain carbolic acid and one-half drop tincture of iodine, given in combination and properly diluted, to allay gastric irritability, when other remedies had failed.

All patients should wear an oiled-silk bandage around the body, from the axilla to the hips, during the period of desquamation, to protect the kidneys. Should the urine become scanty and high-colored, as it frequently does during the early stage of desquamation, I generally give potassæ acetas, one-half ounce; infusi digitalis, two ounces. Dose, a teaspoonful to a dessert-spoonful, according to the age, every three hours. Give a general hot bath two or more times a day, and foment the lumbar region with flannel cloths wrung out of a hot infusion of digitalis, covered with oiled silk. If, after a thorough trial of this mode of treatment, the urine continues scanty, high-colored, and albuminous, dropsical effusions occur, with

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vomiting and threatened convulsions or coma, I give from one-fifteenth to one-tenth of a grain of pilocarpin hypodermically, and repeat in one hour if I do not get its diaphoretic and sialagogue effect.

Prophylaxis. — Believing, as I do, that scarlatina is caused by a specific germ, and that it never originates spontaneously, I feel convinced that rigid enforcement of preventive measures for a sufficient time would absolutely and forever stamp it out. I have no faith in the prophylactic virtues of belladonna, but think that there is a probability that some day we may discover a medicinal agent that can safely be given in sufficient quantity, during the period of incubation, to destroy the germs and thereby prevent the development of the disease. Thorough, complete, and absolute isolation is the one thing needful. This should be both voluntary by the physicians and enforced by legal enactments. All other measures are secondary, and only required in consequence of the impossibility of securing satisfactory isolation. The patient should be put in an upper room properly ventilated, and no one should be allowed to enter the room but the nurse and the doctor, and they should be scrupulously careful that they do not carry the contagious principle out of the room. If the hospital system could be adopted, as in small-pox, it would be much more effective. If the patient is treated as I have advised, anointed thoroughly two or three times a day with carbolized cosmoline; the throat and mouth frequently disinfected by some reliable antiseptic gargle or atomized fluid; discharges from the bowels, kidneys, etc., received in vessels containing sufficient strong disinfecting fluid — probably chloride of lime and corrosive sublimate are our best disinfectants; cloths used for cleansing the nose and mouth immediately burned; cloths frequently wet with the antiseptic fluid hung about the room and in the adjoining apartments — if these measures are properly carried out, very little of the morbific principle can remain in the room.

After convalescence the patient should not be allowed to

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leave the room till he has been thoroughly and frequently disinfected by antiseptic baths — then not till four or five weeks after the beginning of the disease. No one should enter the room till it has been carefully disinfected and fumigated, floors and all furniture subjected to antiseptic washing, walls well lime-washed, and then the doors and windows opened for several days before occupancy. When these measures are intelligently and faithfully adhered to, scarlatina will speedily become a thing of the past.

VIII.

RUPTURE OF THE SPLEEN FROM A PHLEBOLITH, AND CONSEQUENT DEATH.

By C. F. Darnall, M.D., *Walnut.*

The subject of Pathology being an important one to the physician, it is my fortune to contribute a mite to our accumulation of knowledge upon that topic, and it is done with the confession that wherever the writer has been wrong in his deductions and conclusions, it is for the reason that he has followed a rather obscure path, and not from the fact that the approval of others has been the incentive.

Pathology is still in its infancy—a *lex medica non scripta*—notwithstanding the researches of a legion of scientists since the days of Boerhaave and Bichat. A field so prolific of results cannot fail to yield a rich reward to an humble searcher after the golden harvest of medical knowledge and experience.

Physiology is the threshold of the temple erected to the understanding of the secret of abstract life; and, after the preliminaries are learned, we are then allowed to look within the gates of her sister science, Pathology. Empiricism ceased to be and rational medicine began when these twin factors of our

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noble profession were conceived and brought forth. They go hand in hand, to be studied by antithesis, and hence medicine is reduced to an approximate science. Physiology is based on the set principles of natural law, and is the solution of the phenomena of a harmonious arrangement of vital forces. Pathology is more remarkable and curious, varied as the phases of indefinite changeable progression, and unlimited in strange perversions of physiological functions. He who masters one problem in this interesting study, will find at least compensatory satisfaction in knowing that, by his individual efforts alone, he has penetrated a short way into a rich and promising field, which doubtless will lead him continually onward.

My subject, as indicated above, is the result of an autopsy, and the conditions therein existing were so new that they have been investigated and formulated, with the belief that the presentation will excite at least a momentary interest.

'I was called on the morning of January 30, 1885, to see a German woman, aged 36, VI. para, who had been attacked at four o'clock that morning with sudden pain in the bowels, followed by shock and syncope. The pulse was 120, temperature 96 degrees Fahr., and respiration 30, with prolonged expiratory efforts and much general suffering. There was no history of malaria, typhus or typhoid fevers, or any of the dyscrasiæ, nor of rheumatism or diseases of the muscles and joints. She never had experienced any pulmonary or hepatic trouble; her nervous system always had been supposed to be in good condition; her menstrual periods easy and regular, without any ovarian or uterine difficulty. She had occasional times of indigestion, unaccompanied with much pain, and her bowels usually were in a constipated condition. Her principal cause of sickness was in her genito-urinary organs, and her physician had treated her a few months before for "Bright's disease." She was confined to her bed for several weeks with the supposed albuminuria, and only partially recovered. From her subsequent symptoms, it is to be conjectured that she was afflicted with acute idiopathic cystitis. For a few weeks pre-

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vious to the time she was seen, her physician, in treating for constipation, exhibited jalap, rhubarb, and other drastics, meeting with no success, as the only effect was to cause unsatisfactory straining at stool. When she was seen, there was pain on pressure over the spleen, and also in the right iliac region, and the omentum gave on palpation a peculiar brawny sensation, with no tympanites or peritonitis. No absolute diagnosis being made, other than that of a possible perforation of the bowel, an enema was ordered, with alcohol, quinine, and opium, hot poultices to the abdomen and dry heat to the extremities. Reaction did not follow, and death ensued on the morning of February 2 — three days later. Twelve hours after a *post-mortem* examination was held. The intestines were empty, congested, and distended with gas. The omentum was injected, dry, and œdematous, with little serum or blood present in the peritoneal cavity.

The first thing that came to our notice was the half-filled bladder, the whole tissue of which seemed inflamed and hyperæmic. The uterus was found prolapsed, and the right ovary as large as a hen's-egg, while the fimbriated extremity of the Fallopian tube was in a black, gangrenous condition, enlarged and infiltrated. The entire broad ligament was congested up to its attachment to the uterus. The ovary was opened and discovered to be of cystic degeneration, filled with clear, albuminous liquid. Search was made for the left ovary, but it was entirely missing, as was also the round ligament, oviduct, ovarian ligament, and usual blood-vessels, forming the anomaly known as *uterus unicornus*. The unilateral development characteristic of this rare condition of the uterus, so far as the fundus pointing toward that side in which the ovary was present, was obliterated, being found in its highest state of perfection in the virgin; and, as this woman had given birth to a child a few months previous, the body of the uterus seemed not to have yet returned to that period of involution when this feature would be especially prominent. The broad ligament was present, and between the folds was found the

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organ of Rosenmueller. As menstruation had taken place three weeks before death, the remaining ovary was further examined. A portion of it was of normal tissue, full of Graafian vesicles and *corpora lutea* in various stages of development and disappearance. The latter were of different sizes, lined with the duplicature of yellow granules of fat, and in the center of one or two were blood-clots. Surrounding them the tissue was of the natural type, not congested, and extended over upon the sides of the main cyst, showing that it had sprung from one of them and was of recent growth. Externally the walls of this cyst were of a white, fibrous nature; internally of the peculiar bluish color common to ovarian tumors. The degeneration being multilocular, several very small cysts were in the parenchyma of the ovary, adjacent to the largest cyst, all filled with brownish or straw-colored liquids.

Proceeding in the search for the cause of death, the stomach was found to be in a rather congested state; the liver dark-colored, with spots of atrophy or contraction; and the kidneys injected, enlarged, and flabby. The spleen was atrophied, and upon the external surface, near the superior edge, we discovered a rent, or laceration, large enough to admit the finger, from which exuded a small quantity of clotted blood. The solution of continuity was transverse to the length of the spleen, about two centimetres long, and in depth nearly three centimetres. Upon the internal surface was found what seemed to be a spot of fatty degeneration, as large as a silver dollar, covered by a tough, yellow-colored, serous membrane, which being opened gave vent to a discharge of lymph or detritus. The bottom of the laceration was contiguous to this diseased spot, there being only about a centimetre of tissue intervening. In making this cursory examination of the abdominal viscera, a glimpse was caught of a foreign substance lying among the folds of the intestines, and we next discovered this same body in Douglas's fossa, whence it had gravitated during our manipulations. This substance was of a

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hard nature, like a renal calculus, nearly the size of a horse-bean, curved on the flat, rough, no facets, and in weight about a gramme. Naturally we linked together this concretion and the rupture in the spleen; but doubt being expressed that a calculus could come from a ductless gland, careful search was made of the intestines, gall-cyst, kidneys, and ureters, in the hope of finding an opening whence it could have escaped into the abdomen, but with no success. The rupture in the spleen was of such a nature as showed the spontaneous expulsion of the body; and upon a second search being made, with the same result, the conclusion was forced upon us that this unpretending organ in the human economy was the habitat of the nodule, and that its presence, or rather its liberation, was the cause of rupture and death.

I have been unable to find on record such a thing as a *splenic* calculus, but our standard medical lexicographer (Dunglison) says, in his definition of the word, that a calculus may form in the substance of a body or organ, as the result of nutritive irritation, and be expelled spontaneously. Professor Fitz says, in the new "American System of Medicine,"* that pathological deposits, in the form of calculi, occur in those organs which convey in canals their peculiar secretory fluids, and that these are formed of the predominating inorganic matter in them; as, for instance, a renal calculus in the pelvis of the kidney, which, on analysis, will be found to be composed of the urates of sodium, potassium, calcium, magnesium, or ammonium, or their phosphates or oxalates. The spleen having no duct, the question of this being a calculus is excluded and disposed of.

The next thought is of tuberculous origin, but let us differentiate that idea. There was no evidence of a tuberculous deposit in the mesentary, liver, or intestines, and where the abdominal cavity is invaded it is more apt to become general, and does not attack a small portion of one organ, leaving the rest of the viscera alone. Besides, the deposits are of the

* American System of Medicine, Ed. 1885, Vol. I., p. 89.

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miliary type at first — small, minute bodies — and in consistence are not hard, like the one under consideration, but of a soft, waxy nature, easily cut, and showing the presence of earthy deposit. They are never of such hardness as to cut out of a tissue spontaneously, making a free and clean incision. There *can* be tuberculous calcific degeneration, but the agglomeration of single tubercles and consequent calcification cause a mush or cheese like substance to form, and never hard or stony, which excludes this thought, and we now turn to the next theory, which probably is correct.

The question of concretion presents itself as a plausible one, when we understand that cretaceous degeneration may take place in any portion of the body. Calcification is a deposit of salts, previously held in solution in the blood, under abnormal circumstances, in and upon organic matter, as the result, for instance, of an inflammation. This inexplicable fact is well known, and Stricker says, in the "International Encyclopædia of Surgery," that "tissues have the property of depositing lime-salts. . . . As cartilage is converted into bone, it must deposit lime-salts in its basis substance. But cartilage calcifies sometimes (as, for example, under the influence of slight inflammatory stimuli,) without being converted into bone. Of pathological calcifications of other tissues, too little is known, beside the mere fact that they do occur, to warrant my considering them here." *

Fitz says further that concretions occur in the tissues of organs, and are collections of inorganic salts, chiefly the carbonate and phosphate of calcium, hence deposited through the agency of the blood. It is not necessary that these calcifications take place in the solid portion of an organ, for veins are often found with a concretion or *phlebolith*, and this is the development of my investigation. That this is a concretion, an analysis showed it to be carbonate of lime, while the laceration in the spleen seemingly terminated in the splenic vein,

* International Encyclopædia of Surgery, 1881, Vol. I., p. 62.

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enlarged and dilated, into which the stone I present seemed to fit quite naturally.

The absolute cause of this strange formation is, of course, speculative; but, so far as a general review of literature has to do with forming an opinion, the preponderance is in favor of hemorrhagic infarction, according to Cohnheim,* or coagulative necrosis, as it is termed by Ziegler.† An embolus being arrested in a small artery, inducing extravasation and a secondary thrombus in the vein in consequence, or a primary thrombus from a similar source in the vein, underwent transformation, interfering with the necessary blood supply of the surrounding area, and caused upon the surface of the spleen what Ziegler designates an "opaque yellowish-white conical patch."

Guillebeau‡ advances the same theory, saying that splenic infarcts are hemorrhagic, quickly becoming decolorized and degenerated.

Green§ says that infarcts are usually found in the spleen, wedge-shaped, with the apex of the cone toward the center of the organ, rapidly undergoing softening and disintegration, by regurgitation from the veins into the capillaries.

The theory of Rokitansky,‖ regarding phleboliths, is that they are caused by a retarded flow in the veins, coagulation and incrustation following, and that within the concretion is an irregular brownish fissure—the clot—which is found within the one under consideration. He says further: "We not unfrequently find the sheath of the spleen indurated and cartilaginous, or ossified, and at the same time ossification of the arterial ramifications and free calcareous concretions (phleboliths) in the veins of the organs."¶ Elsewhere he states that in atrophy of the spleen, as a result of perverted nutrition,

* Ziegler's Pathological Anatomy: Wood's Library, July, 1883, Art. 36.
† *Ibid.*, Art. 36. ‡ *Ibid.*
§ Pathological Anatomy, Philadelphia, 1881, p. 192.
‖ Pathological Anatomy, Sydenham Edition, Vol. IV., p. 356.
¶ *Ibid.*, Vol. II., p. 167.

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small concretions are found in the walls of veins, which are free and chalky. During life they show no symptoms, and consequently are not amenable to treatment.

Ziegler* says of petrifaction that the process is derived from the salts in the blood, not simply precipitated and retained, but formed as a solid compound. He mentions that large infarcts of the spleen are sometimes imperfectly reabsorbed, so that the cicatrix encloses a necrotic caseous patch.

Ponfick attributes the formation of these bodies to thrombi in the veins, but says it is an hypothesis.

Delafield and Prudden † say that the contents of an abscess of the spleen, as the result of embolism, may dry, shrink, and become calcified.

Orth, in "Lehrbuch der Pathologischen Anatomie," states that phleboliths are occasionally found in the spleen, mentioning no case, and speaks of the frequency of degeneration of an infarct from embolism. He says they may become absorbed, and contain lime salts.

Birch-Hirschfeld ‡ claims that phleboliths are occasionally found in the spleen, resulting in each case from calcification of the thrombus in enlarged veins.

Morgagni § records a case in which a phlebolith of the spleen was discovered in an autopsy, weighing twenty-one drachms.

Bristowe ‖ has found them in the spleen and various organs of the body, and attributes their presence as the result of an adherent blood-clot undergoing degeneration.

Callender ¶ calls them loose calculi, producing no inconvenience.

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* *Op. cit.*, Art. 64.

† Pathological Anatomy, p. 363.

‡ Lehrbuch der Pathologischen Anatomie, p. 140.

§ Wardell: Reynold's System of Medicine, Phila., 1880, Vol. III., p. 471.

‖ Bristowe, *ibid.*, Vol. II., p. 883.

¶ Holmes's Surgery, *quid vide.*

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Bichat * thought they occurred in veins wherein there was slow circulation.

Hasse† found them in varicose veins, which also is Paget's‡ theory.

Aitkin § calls them products of petrifaction of blood-clots in enlarged veins.

Quain || records that they form from a vein-clot, and are perfectly harmless.

Gross ¶ states that ten, twenty, or thirty phleboliths may be found in the enlarged veins of the spleen and pelvic organs, formed from blood-clots.

Merbach *' reports that he found them in cirsoid or varicose veins, usually in the pelvis, composed of blood and inorganic matter.

Cruveilhier's†' opinion is that they are developed in a blood-clot.

Druitt,‡' in his Surgery, shows an illustration of a female who had several phleboliths in irregularly dilated veins under the lower jaw, which he removed with the knife.

Another case on record of the knowledge of the presence *ante-mortem* of a phlebolith is by Gould,§' who found in the popliteal space of a woman a concretion two and a half inches long. He attributed the cause to a blood-clot in a dilated vein. It was not removed.

Wyeth ||' says that phleboliths are found in venous cutaneous tumors, and, in opposition to what has been cited, says the circulation is active.

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* *Vide* Holmes's Surgery, art. by Callender, *op. cit.*

† Anatomie Générale, par Béclard.

† Paget: Lecture 29, p. 488.

§ Aitkin's Practice, Vol. I., p. 127.

|| Quain's Dictionary of Medicine.

¶ Gross' Surgery, Vol. I., p. 817.

*' Medinische Encyclopädie, art. Milzkrankheiten.

†' *Vide* Callender, *op. cit.*

‡' Druitt's Surgery, p. 320.

§' Philadelphia Medical News, Vol. XLIII., No. 9.

||' International Encyclopædia of Surgery, Vol. III., p. 372.

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Our various works on surgery mention phleboliths, and the opinions are circumstantially as given above. It is also on record that these concretions are found in hemorrhoids, as well as in the external genital organs.

Nearly sixty cases of rupture of the spleen can be tabulated, so far as my study has gone, and about one-fourth occurred spontaneously after unusual muscular exertion — for instance, after vomiting, straining at stool, or a sudden twist of the body. In all these cases the viscus had previously suffered from disease, as malaria, typhus or typhoid fevers, or some malady resulting in softening of its tissue. Traumatic cases make up the other three-fourths, and are usually the result of gunshot wounds, blows, and falls.

Of all cases of rupture, none is recorded as being caused by a concretion, and as death in this patient undoubtedly ensued from rupture in consequence of liberation of the phlebolith induced by hard straining at stool, this is placed on record as perhaps the first case of the kind.

In a communication from Surgeon-General Billings, Librarian of the Army Medical Museum and Library, he says: "I have had our index references to rupture of the spleen examined. There are many cases of rupture of the spleen reported, but I have not found any due to or connected with a phlebolith."

The malformation of the uterus and appendages is another rarity, and want of time forbids a lengthy discussion of the condition. The text-books all speak of the possibility of *uterus unicornis*, but no cases are given. Lawson Tait,* in the last edition of his work, says that he has been able to find on record only one case of this singular development; this he credits to Chaussier, as quoted by Busch.

* Diseases of the Ovaries, New York, 1883, p. 36.

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IX.

WAS IT SCURVY?

By Rosa Martin Upson, M.D., *Marshalltown.*

Mrs. A. T. L., Dane; been in this country three years; age 36, married; mother of three children — youngest 13 months, eldest 9 years. Called to see patient March 25, 1884. Found her able to be about the house, but looking badly — thin in flesh, with a pinched, yellow look about the face, and complaining of being tired all the time. Felt better when sitting quietly than when moving about, but did not feel sick enough to stay in bed. Did not complain of any particular pain, but said she had a *light* feeling in head and inability to think. Had done washing for a living all winter, but of late had been compelled to give it up. Uneasy and restless at night with troubled sleep, and consequently felt so tired in the morning that she could not work. Bowels constipated, appetite variable, pulse small and feeble, temperature normal, tongue coated and trembling. Knowing that the family were in poor circumstances and had passed through a hard winter, that the woman had nursed her child all winter with probably half enough to eat and plenty of hard work, I pronounced it a case of general debility. I prescribed cascara sagrada for the bowels, and tonics for the general system. On the third day the woman thought she was much better and would not require my services any further, and I did not visit her again until called, April 12. Found patient in bed; said she was not sick, and appetite first-rate. Cascara had kept the bowels in fair condition, and said when she lay in bed she felt well, but could not be about upon her feet. A sensation of weariness all the time in her limbs, even when lying in bed, but no particular pain. Pulse slow and feeble, temperature 96 degrees, face pale and anxious. I was puzzled at my failure to build up her strength with the remedies I had used, and still ascribed

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the trouble to general debility, as her appetite seemed to be very good indeed. Thinking that perhaps her system could not assimilate the coarse food which I knew was the best they could afford, I prescribed and furnished the best of port-wine and fresh eggs, and still continuing the other tonics, made *myself*, every morning, fresh beef-tea; and enlisting the neighbors in her behalf, they were very careful to see that she was fed properly and at regular intervals, and that the medicines were given as ordered. One week passed, and no marked change. Often on making my visit I would find her sitting up in bed mending some garment for the children, and when I remonstrated, would say that she felt better so; that she had tried sitting in a chair, but could not. She always got out of bed to attend to nature's calls, but could not bear her weight upon her limbs. Bolstered up in bed she thought rested her, and she felt no more tired with sewing than without. To add to my discomfiture, the husband and eldest child had that morning begun to complain in precisely the same way as did the woman at first. I became alarmed at the condition of things, and April 21 called in the city physician for counsel. He agreed with me in a diagnosis of general debility, and thought there was also some malaria, but saw nothing in the treatment to be improved upon, and advised the same treatment for the two new patients. The next day the boy took to the bed and seemed to have completely lost the use of himself, without any symptoms of paralysis — simply a giving out from weakness. April 25 I was called to the woman, the messenger saying that she was bleeding to death from the nose and mouth. Found hemorrhage not profuse, but steady, and seemed to ooze from mucous membranes, especially from around the teeth. Face had a leaden, deathly look. Patient was conscious, and had relished the food that had been given her. Succeeded in arresting the hemorrhage by using a mild solution of persulphate of iron, but it soon returned. An elderly Dane neighbor came into the room while I was there, and said: "She'll never get well. I have seen lots of that on shipboard; they

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never get well." I said: "You don't mean scurvy?" "Yes." Immediately my mind flashed back over what I had read of scurvy (never having seen a case), and I could remember many things which certainly resembled the disease; but my stumbling-block was what could have produced it, under the circumstances. I noticed, at the same time, bruised-like patches upon her arms, neck, and shoulders. I called in two of the best physicians in the city. They were not willing to call it *scurvy*, but could not give it a name. Within twenty-four hours blood was oozing from bowels and vagina, as well as from nose and mouth; the body was covered with petechiæ, and the woman died. Acting upon the supposition of scurvy, however, I continued the wine and tonics with the other two patients, and in connection gave them all the lemons they would eat, with cream tartar water for drink. New vegetables were beginning to come into market, and we gave them plenty of lettuce and new onions. Inside of two weeks more, both were about the house, only mere shadows of themselves.

Now, was it scurvy? If not, what was it?

I have given you the case in detail as much as time will admit. The house in which this family lived stood on a low, wet lot. It was 12x22 feet, divided into two rooms. The family consisted of the man, his wife and three children, his sister (aged 40) and her daughter (aged 16), and two workingmen, boarders — all Danes. In the front room, 12x12 feet square, they cooked, ate, and washed every day, the room being continually filled with smoke and steam. The second room, 10x12 feet, was used as a sleeping-room by the entire party, six adults and three children, and the only place for ventilation being a small window, and that always closed at night. Under the house was a hole called a cellar, at this time full of water. The food of the family during the winter had been potatoes and the poorest grade of flour, their meat mainly consisting of dried herring and codfish and the bacon usually kept in the grocery. The water used for drinking and cooking came from a well 16 feet deep, which was filled with surface water which

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drained from the adjoining lots, all of which were higher than the lot upon which it was dug, and upon nearly all of these lots a small stable was occupied all winter by horses, cows, pigs, or chickens. Each of the inmates was sick during the spring, with more or less the same symptoms, but in different degrees of severity. The woman was the only one who died and the only one who had hemorrhage.

X.

THE METABOLISMS OF THE ANIMAL BODY.

By T. W. Shearer, M. D., *Des Moines.*

There is perhaps no process that has solicited more inquiry to solve, and yet remains largely unsolved, as the peculiar changes which take place intermediately between the ingesta and the excreta of the animal body — those changes which result in the elaboration of food into living tissue, followed by the gradual disintegration of the tissue.

It is very evident that the excreta must bear a definite relation, both in quality and quantity, to the food ingested, and that the animal body can only be maintained in a healthy condition by the judicious selection and use of food that will supply every principle, or at least the elements of which the complex animal body is composed.

With this end in view, various analyses of the body have been made, with the hope that a knowledge of its constituents and their proportions would materially aid in this selection. But from this stand-point it has accomplished but little — the results leading only to general truths, which are modified by many circumstances and individual peculiarities.

The more valuable results have been brought about by actual experiments on living animals, which not only enable

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us to make the proper selection of food, but materially aid in studying the phenomena of the animal laboratory, leading to many valuable conclusions regarding the elaboration and disintegration of the various tissues and organs.

Chemical analysis has shown that there are three great classes of foods, and practical experiment has proven that representatives of these food principles are absolutely necessary to life, and a certain proportion should exist to bring about the highest condition of health. This proportion will, of course, vary in different individuals, and at different times in the same individual.

Perhaps a fair average is found in the one chosen by Dalton, which is as follows: Nitrogenous matter, 130 grammes; starch and sugar, 300 grammes; fats, 100 grammes; mineral salts, 20 grammes; water, 2000 grammes. Of the three classes of foods, the nitrogenous is most important, followed by the carbohydrates, and lastly the inorganic salts. Yet it is difficult to say which is the most important, since the removal of any class from the food sooner or later proves fatal. But since experiment has shown that animals live longer when supplied with nitrogenous and deprived of the other food principles than in the reverse condition, and from the fact that the greater bulk of the body, comprising the muscles and all the secreting glands and protoplasms, is essentially composed of nitrogenous proximate principles, we have circumstantial evidence, at least, of their supremacy.

This brings us to the important fact which further substantiates the degree of importance assigned the various food principles: The *inorganic* salts, with few exceptions, play no direct part in metabolic changes, but appear in the excreta unchanged. The *carbohydrates* never appear in the excreta unchanged, except in a state of disease, when we may have chylous or diabetic urine. The metabolic or glycogenic function of the liver is one of the best defined and most clearly understood of all the metabolisms, and while we may have albuminuria from many causes not dependent upon the

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nitrogenous metabolic function, the derangement of this function may cause albuminuria, and the function itself is so complex and obscure that our knowledge can go but little further than possibilities and probabilities.

As we have said, the inorganic salts take little or no part in the metabolisms of the body, most of them passing from the body just as they entered, after having performed their office, which in most cases is found to be a mechanical one. To illustrate: Chloride of sodium passes through the animal body unchanged; having been fixed in a tissue here and there, it is reabsorbed by the blood to assist in endosmosis or exosmosis, or the absorption of gases in some other part of the body, and is finally discharged in the urine as chloride of sodium, never having lost its identity. This is the use and importance of the greater number of the inorganic substances, with the following exceptions: Acid phosphate of soda is formed in the blood from the neutral phosphate of soda by a molecule of uric acid appropriating a molecule of soda to form urate of soda. It is to this reaction that normal urine owes its acid reaction. The vegetable acids, as citric, tartaric, malic, benzoic, etc., undergo decomposition or are split up in the animal organism into carbonic acid and water. The carbonic acid recombines with soda or potash, forming carbonates of soda or potash, as the case may be, which are eliminated from the body in this form, imparting an alkaline reaction to the urine. The sulphur, which is a component of most nitrogenous substances, is transformed in the retrograde processes of oxidation into sulphuric acid, which combines with the various inorganic salts to form sulphates. With the above exceptions, the inorganic proximate principles pass through the animal laboratory unchanged; hence we see that the inorganic substances do not, for the most part, directly take part in the chemical changes going on in the body, but by their presence enable changes to take place which are necessary for its nutrition and life.

With the second class of food principles it is very different. They are completely changed, losing their identity entirely, so

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far as ingesta and excreta are concerned. They also differ from the former group, in that the inorganic compounds are all natural formations, not dependent upon organization or life for their existence, while the hydrocarbons have no existence except through the intervention of life. The vegetable kingdom is their great source. Starch is *always* of vegetable origin. The animal organism cannot produce starch, but of sugar and fat it seems otherwise. It is not necessary to mention that starch and all the varieties of sugar can only gain access to the circulation by being changed into grape-sugar or dextrine, and that this change is effected by the nitrogenous ferments — ptyalin, trypsin, etc. The experiments of Claude Bernard are familiar to all, which proves that the liver is a storehouse for this article of food when it is introduced into the system in greater quantities than the immediate needs of the organism can appropriate. This is a necessary provision for which more reasons than one can be given: the prime reason is that there are no amylaceous tissues in which sugar is the principal or even an important part. This is very different with the fats of nitrogenous foods — they being represented in the body by adipose tissue, muscle, etc.

Sugar, in small quantities, is a normal constituent of the blood and most of the tissues of the body — not that it necessarily forms a part of the tissues, but it would seem from the readiness with which it is oxidized and the apparent ease and rapidity in point of time with which it can be supplied to the system, being available for use almost instantly, that its great use is furnishing the oxidizable material concerned in the production of animal heat, and protecting the organized tissues having other and important functions to perform, from being weakened or used up in supplying a common need.

It is true that animals fed upon highly saccharine diet increase the weight of adipose tissue far beyond the amount of fat that could possibly be in the food as fat, which would tend to show that sugar was converted into fat. It is held by physiologists that by means of the lactic acid fermentation a series of

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fatty acids are produced, and though this is a retrograde series diverging from fat itself, like Virchow's theory of inflammation, in which the corpuscles revert back to embryonic state, and finally, becoming ashamed of their simplicity, turn and climb the ladder to a higher point than they had ever before reached. This may be so, but chemically we cannot prove it. And since we have said that the saccharine materials are prone to do the drudgery, we are content to assign them the task. The liver is the store-house of saccharine substances, in the form of a new substance called glycogen, or animal starch, having the same chemical formula as starch, but differing by being soluble in cold water, and giving a violet reaction with iodine instead of blue. It is believed that the greater bulk of sugar entering the blood is transformed into glycogen by the activity of the hepatic cells, and stored up in that organ for further use, when it is again reconverted into sugar as the demands of the system require it. Certain it is, that the surplus above the immediate wants of the body is stored up as glycogen, to be used when the supply of saccharine material is limited or less than the system demands. The explanation of this process has recourse to a special ferment, and is of considerable interest on account of this function being controlled by nervous impulse, either direct, vaso-motor, or both. The center which controls the function is situated in the vaso-motor area, and is known as the diabetic center, since a puncture or stimulus applied to this center causes sugar to appear in the urine. The reason is obvious, since the glycogen of the liver decreases and the blood becomes correspondingly rich in sugar.

Diabetes is now regarded as a nervous disease, and in this way accounts for many cases of glucosuria. We will just mention the condition known as oxaluria, or excess of oxalates in the urine—also known as the oxalic acid diathesis—since this condition, like diabetes, is brought about by a derangement of nutrition, or, more specifically speaking, of the metabolisms. It sometimes happens that oxalates — and usually oxalate of lime, since the affinity is stronger for this combination than

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any other oxalate — appears in the urine in quantities far surpassing any quantity that could possibly be ingested as oxalates. Since chemistry has revealed the fact that oxalic acid can be made by the imperfect oxidation of sawdust, which is really cellulous, possessing the same formula as starch, the problem is readily solved. The excess of oxalates is attributed to the imperfect oxidation of sugar and some of the vegetable acids. Instead of being reduced to CO_2 and H_2O, which is the result of the perfect oxidation, this process is only partially performed, resulting in an intermediate compound of oxalic acid. The cause is imperfect nutrition or inactivity of the metabolic function; the result is calculi, oxalic acid poisoning, etc.

Of the fats and their metabolisms we have little to say. After their saponification and absorption into the blood they are appropriated by the various tissues in either or both of two ways: either the granules of fat are collected by the coalescence of individual granules and stored up loosely in the connective tissue, envelope, or cell, or it is further elaborated by the protoplasmic activity of the cell, resulting in a corresponding loss of protoplasmic substance. This seems to be the case in the secretion of milk, and brings us to the important fact that nitrogenous substances, of which protoplasm is a prominent one, is capable of splitting up into urea and a fatty moiety which is productive of fat. Certain it is, that fat can be made or produced from the disintegration of nitrogenous tissues. This, you will observe, is a nitrogenous metabolism, and it cannot escape your notice that this change is contrary to the law regulating the supremacy of the tissues. It is known that adipose tissue is the first to disappear or suffer loss to maintain the higher tissues, while this is an example of the reverse condition, which shows that the law holds true only within certain limits and in accordance with the law of equilibrium, showing that adipose tissue is essential to this equilibrium and must be maintained, at least in a certain minimum proportion, even though the higher tissues are sacrificed to maintain it.

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XI.

IRRITATION OF THE SPINAL CORD AS A DISTINCT AFFECTION.

By L. C. Swift, M.D., *Des Moines.*

"Irritation of the spine," used as a name for a condition giving rise to a series of symptoms, which occur with a certain degree of regularity, varying in relative prominence only, in some cases, and taken as a group, always gives origin, in the mind of the physician, to a doubt of the condition being purely hysterical, although closely resembling it, and thus, by negation, separating it from this condition.

The term used has been taken by some of the earlier observers from the most constant and generally prominent symptom — viz., spinal tenderness. This condition was described and differentiated from other affections, by some of our English observers, as early as 1822, when Mr. Player wrote an article on it for the *Quarterly;* and, in 1829, when Dr. Darwell reported some of his observations upon it; also, in 1829, by T. P. Teale, who called especial attention to it in his treatise on "Neuralgic Diseases Depending upon Irritation of the Spinal Marrow," etc. In 1844 William and David Griffin wrote an article upon it from their observations, and had this published. Dr. Brown, of Glasgow, in 1848, appears to have been the one to propose the name "Spinal Irritation."* Since then quite a number of writers have given us the benefit of their thoughts and experience with this affection, and have almost unanimously used the name given to it by Dr. Brown in 1848.

In my experience with this tenderness of the spine (when associated with other symptoms indicative of spinal irrita-

**Vide* Reynold's System of Medicine.

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bility), there have been no indications of inflammation, or even of its first stage — congestion — even during the acute attacks or exacerbations; in fact, generally the indications have been of the opposite condition — anæmia.

This tenderness, increased by pressure, is associated, in the condition we are considering, with a pain, generally aching in character, in some one locality; or it may be more than one — even the whole length of the spinal tract. This pain is not the tenderness or the hyperæsthesia of the skin alone, found so often in true hysteria; nor is it the boring, constant pain of disease of the periosteum or the bone itself; nor the sharp pain of disease involving the meninges; neither is it the peculiar, lancinating pain which accompanies malignant disease; nor the intermittent pain of true neuralgia; but it is a sharp ache, is apt to occur at intervals, is increased by pressure (sometimes even when this is very light) over a particular point of the spine, and especially over the roots of the spinal nerves on either or both sides of the vertebral spines, and lasts continuously for periods of time that vary greatly in different cases, and at different times in the same case; and it is generally accompanied by neuralgia of the sensory nerves arising from the region of tenderness. These neuralgias can generally be classed under the head of sympathetic — or, rather, they are the neuralgias that occur with affections or symptoms that are classed as being sympathetic in their nature. The pain in the gastric region precedes the vomiting. for instance, which is almost always very like the vomiting of pregnancy, or else projectile, and is not accompanied by other symptoms of indigestion, very often not even nausea. but can be caused, in most cases, by pressure over the upper dorsal spine or the roots of the spinal nerves arising from that region of the cord.

Preceding, during, and following the exacerbative attacks of the spinal irritability and pain, there is very apt to be a mental depression, which I have noticed in several cases, amounting almost to melancholia; and this without any appar-

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ent immediate adequate cause being present, other than the exaggerating imagination of the patient, but, so far as my observations go, invariably following the recurrence of the spinal pain, and seldom accompanied by the headache of congestion, but quite often by that of cerebral anæmia. Other attacks may be characterized by marked pleurodynia, which is quite often accompanied by true (or intermittent) neuralgia of the cardiac or pharyngeal nerve branches, or both; and this, in severe attacks, often causes functional cardiac or pharyngeal disturbances. I have noticed attacks in one case during which the cardiac pulsations have become nearly imperceptible to the hand, and almost so to the ear, and lowered in frequency to 36, the normal being 68. In the same patient I have watched attacks in which the dyspnœa was very marked and the respirations would rapidly become less frequent, even so that there would be but four in a minute. In other attacks the difficulty in respiring would not be so marked, but the number in a minute would not be more than six or eight, while they would be full and regular; at other times the frequency would be increased to 50, and even more, without being at all labored or unnatural in other respects than the acceleration — the spot of spinal tenderness, however, would always bear a constant relation to the symptoms in location and degree. Some cases are characterized by quite prolonged attacks, that closely simulate catalepsy, but I have never observed symptoms epileptiform in character. These patients are not apt to become emaciated to any great degree, but almost invariably do present evidences of anæmia, even so marked sometimes as the venous hum.

The pathology of this condition is as yet obscure, and what *is* known about it has been deduced from symptoms that are presented with a certain degree of constancy in a series of cases; and principal among these symptoms stands that of exhausted nerve-power, or, as has been quite often said to me by patients, "loss of backbone." As I have never seen a fatal result from spinal irritation *per se*, I cannot give the

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results of my own observations made *post-mortem;* but I have seen a few examinations, made with the microscope, of fresh specimens from portions of the cord, that were tender during life, and where death was caused by cardiac disease, but could not feel satisfied that the changes from the normal condition presented were not due to the cardiac lesion — the tenderness of the spine occurs, we know, when no cardiac lesion can be detected. Some writers have given us as a fact that anæmia of the cord exists in cases of spinal irritation, deducing this result in opinion from the fact that death was caused, in the cases examined, by disease which often causes hyperæmia, and even softening of the substance of the cord. The symptoms of spinal irritation bear a certain constancy in relation and character that almost forces us to conclude that there is but little pathological change in the cord; and when the cases are of this condition, uncomplicated, there are no symptoms presented indicating, without doubt, disease of any part of the body, although we certainly have symptoms that occur with other and well-known diseases, the pathological changes in which *are* understood, and which are temporary, and lack the constancy (for one thing) of symptoms occurring in diseases of which we *do* know the pathology.

In tracing the history of a certain number of cases back to a point of seeming origin, a period of life is almost invariably reached when some prolonged period of febrile action has been present, or a period of mental strain kept up continuously for a long time. Some cases date the commencement of the trouble from the time of some severe injury — generally a blow or fall — but usually, in such cases, careful investigation will reveal the fact that symptoms indicative of nervous exhaustion have been present before the time of injury.

Heredity, as a cause, I have not been able to prove satisfactorily to myself, neither have I been able to find that other observers have satisfied themselves that it is a direct cause; although we hear such statements made by our patients with this trouble as "My mother, or aunt, had just exactly the

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same trouble with her back as I have." We know of a number of diseases giving rise to a similar symptom, and when we look for the proof of this inheritance, to be found in a series of similar cases in different generations back, we fail to gain satisfaction. We may, it is true, find other members of the family who have had various affections of the nervous system, but probably not this especial one, and I do not think that this "inherited nervous temperament" is direct heredity of this specific form of trouble, for we know very well that the so-called "struma" is shown generally in afflicted members of the family and their descendants by not only affections of the one system, but almost always by its location being in one particular part of that system in the various individuals inheriting. We often have, for instance, patients state as a fact that they inherit indigestion, and that this indigestion causes pain in the back and all the other symptoms. The patient may have indigestion (few have not), and the symptoms of spinal irritation may be aggravated during attacks of indigestion, so that they attract nearly all of the patient's attention; but indigestion is a functional disturbance that, when present, causes various, and sometimes alarming, symptoms, and almost invariably aggravates symptoms of any preëxisting trouble. Functional disturbances, however, are rarely, if ever, inherited, although their causes may be; and the so-called inherited tendencies toward functional disturbances, especially of the digestive tract, are generally acquired, and that from the habit, which is unconsciously formed, through the very human trait of following examples by living with persons having this habit. This is very often mistaken for inheritance, but, as a fact, I do not believe that we are given functional disturbances of our digestive apparatus as an interesting thing with which to begin life.

These patients, we almost always find, belong to a class of people who have, from habit or a mistaken zeal of parents, developed the mental and physical powers as if they belonged to different individuals — giving one season of teaching to the

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mental, and when this has been pushed almost to the verge of rebellion or endurance, the physical body is taken in hand and receives its share of attention; and this training by fits and starts results in separating the two and preventing the mutual development and dependence that nature demands in order to produce the normal condition and equilibrium necessary for the presence of health. One of the results of this, one might almost say criminal, fashion of educating children, is the condition found in patients suffering from spinal irritation, combined with an excitable or impressionable temperament mentally, but physically able to bear the fatigue proportionate to the strength (or, rather, the power) of the nervous centers, without bringing on paroxysms; but if this proportion is disturbed, or the limit exceeded, by exerting the physical force under stimulation of the nervous, we will surely have a paroxysm as the result of straining the latter, and in direct proportion to the degree of stimulation given to it. Typhoid fever occupies a place nearly, if not quite, at the head of the list of causes for spinal irritation, and after this come such diseases as cause general anæmia, especially those that eat up the vital forces and bring the physical body into action as a food for their consumption, resulting in what is commonly known as general debility.

Very often this condition of spinal irritability is called hysteria, and treated as such. In many instances the more violent measures resorted to, in order to curb the attacks, under the impression that hysteria has to be dealt with, result in serious trouble for the patient; for instance, I know of a case of spinal irritation, when, under the impression that the attack was hysterical, the attending physician resorted to the cold-water douche, and used this remedy freely, and the immediate result was an attack of pneumonitis, the original condition not being ameliorated in the slightest degree. Such an error as this is very unfortunate, and could be avoided by bearing in mind that the prominent symptom, from which the affection takes its name—viz., pain in and tenderness on pressure over a

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certain portion of the spine, or may be the whole length of it—is *first* invariably present, in some degree, and that this is not a symptom of hysteria. The mistake is made by confounding the hysterical hyperæsthesia of the skin over a portion or the whole length of the spine for this almost pathognomonic symptom of spinal irritation.

Let us start with this one symptom in a supposed case. We will find, first, that all the other symptoms vary in location and degree according to the location and severity of this one. Suppose, for instance, that we are called to see a patient who seemingly has become unconscious; we find, upon questioning the friends, that she (for women more frequently seem to be the sufferers) complained of pain in her back between the shoulders and in the cervical region before the unconsciousness came on. We find her rigid; the breathing is slow and abored, may be catching at times; the countenance is natural; the pulse weak and very slow. may be irregular, and the temperature about normal. All the usual methods for determining the blood from the head have failed to bring about a change in the patient's condition. We find no signs of pulmonary or cardiac disease, but can get from the friends a history of violent vomiting at irregular intervals for some days previous to the commencement of the attack; and, before this, of the patient having been excited by some event, or culmination of events, or may be by prolonged mental labor. We ask about menstruation, and find that it has been normal; about the bowels and urinary apparatus — they have performed their functions naturally. We are at a loss to account for the present condition, and try to conceal from the friends this fact, and our annoyance at it, by advising some measure that will allow us to gain time to think. Very naturally we try to stimulate the circulatory power, and are astonished at the patient's evincing consciousness when stimulants are forced between the stiffened jaws. We use the hypodermic syringe, and the patient is aroused in a few minutes and states that she has known of everything that has been going on around her from the very

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first, even to hearing and understanding the conversation, proving this by repeating portions of what has been said, and telling in detail what has been done in order to arouse her. Now suppose, instead of the stimulants, we attempt the measure so often used to arouse hysterical patients — the cold douche — it is likely we shall be more or less dumbfounded by the patient protesting against it, feebly in all probability, by a motion or an articulate sound; then, if we examine further, as we would naturally, and the spine claims our attention, the cervical region, the easiest to get at, we will find, probably, that pressure will cause some of the symptoms to be aggravated, and will be very apt to resort to the first-mentioned measures for restoration — stimulation — and will be rewarded, after a time, by seeing the rigidity give way, the breathing become more natural, the pulse and heart's action stronger and more regular, and finally a moan from the patient, soon followed by the ejaculation, "Oh, my back!" This will call our attention to the back, if it has not already had it, from the symptoms, and we will find that the above-mentioned phenomena follow our examination. Gradually the patient recovers, suffering for some time, probably, from pain in the back, which we will find is alleviated by counter-irritation. In this, or in some similar way, we may learn from experience what we lack from familiarity — the method for treating the case successfully during attacks in the future. During the convalescence of the patient we examine very carefully for disease of the lungs, heart, stomach, kidneys, bowels, uterus, ovaries, brain, and spinal cord, according to the symptoms presented, but fail to find any evidence warranting the conclusion that the cause of the attack lies in disease of any of these organs, unless it be the last-named. We become interested and study the case carefully, reading all the literature we can find that contains anything bearing upon the subject, and are sure to be rewarded for our trouble if we observe the case closely. We find that, whenever any of the symptoms that have been noticed are present, there is always a pain felt in that region

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of the spine corresponding with the roots of the nerves supplying the organ seemingly affected; as, for instance, there is pain in the lower cervical and upper dorsal regions. The symptoms are vomiting, without nausea, at irregular intervals, but always when more than a certain quantity of food has been ingested, and without relation to its quality or kind. There is a difficulty of breathing, without pain in the lungs; there is a variation in the pulse rate and volume. Afterward, perhaps, the upper cervical region of the spine becomes painful; this is followed by difficulty in swallowing, a flow of saliva at first, and then dryness of the mouth and fauces, and facial neuralgia, and, perhaps, pleurodynia. When the back is examined, we find that any of these symptoms can be aggravated, almost at will, by pressing upon a certain point within the region of the spinal pain, and especially so if roots of the spinal nerves are pressed upon; and the pain is invariably increased by the pressure before the symptom produced is aggravated. There are no symptoms of congestion of the cord or its membranes, or of disease of the bony canal; but there is apparently a functional trouble of the spinal cord, giving rise to the symptoms presented through the sympathetic action of the nerve filaments.

But I believe that in giving my own experience with a case that came under my care in 1881, and that I have watched carefully since then, I will give you a better idea of this trouble, in the way I see it, than I can by citing my own opinions. I therefore take the liberty of presenting to you, as I noted it, the case of Miss ———, aged twenty years — a remarkably well-nourished, unmarried young lady, with a clear, healthy complexion; a figure so erect as to attract especial attention, and very well developed; a very peculiar disposition, which was quite noticeable, even on slight acquaintance, and which might be termed as "intense," but, at the same time, an unusually good and sweet-tempered one (she was most remarkably charitable toward other people, both in thought and action); and with a great deal of decision

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in her character. All other traits, however, seemed to be entirely under the influence of her peculiar disposition, which often developed the troublesome characteristic of obstinacy (or, rather, erroneous conviction as to what was her duty toward others), especially marked in the charitable intenseness shown at all times by her unwavering persistence in trying to keep the knowledge of her suffering from members of her family and other friends. This made it an exceedingly difficult task to form a clear idea of the extent of suffering or trouble, except at such times as these overweighed the obstacle. This intenseness was shown in almost everything she undertook to either do or think, and might at times have been called the power to concentrate her thoughts. It was shown in a remarkable degree when she was conversing upon any interesting topic — not necessarily one with which she was familiar — seeming, at some such times, to arise from her almost insatiate desire to learn. I have seen it shown in a remarkable degree when she would be reciting some emotional piece. At these times she would be sure to lose herself most completely in the character she impersonated, and her powers of elocution, which were quite remarkable, would become a part of herself to an extent seldom seen, even among our most accomplished actresses. Such efforts as these — lasting, as they did, for only a few moments, during which time she would be under an intensely exciting influence — would cause her to suffer very acutely and severely afterward, so she seldom indulged herself in this pleasure (for it was such to her while the excitement lasted), except for the gratification of her friends, and at their earnest solicitation. She gave a family history of struma on her mother's side, but on her father's side the history was clear. This strumous taint was shown in all of the four living children, of whom she was the eldest, by a tendency toward adenitis and lung affections. She gave a personal history of a healthy, active, out-door life during childhood until about the age of ten years, when she and other members of the family had typhoid fever. This proved fatal

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to one child, and another developed renal trouble, which caused her death subsequently, but with my patient did not leave any trouble that seemed marked or annoying, except that her convalescence was much protracted and she experienced an unusual "sensitiveness of her stomach," as she called it — meaning that she always had difficulty in retaining medicines (a peculiarity which her mother had had since she was a young girl). After the attack of fever, this difficulty was increased so markedly that not only medicines were rejected after swallowing, but all fluids, and often semi-solids, when taken with ordinary freedom, and frequently when only a single teaspoonful was swallowed; at other times she would retain a cupful. This vomiting was projectile, occurring immediately after swallowing, and was not, as a rule, accompanied by nausea. When twelve years old, she commenced to study very hard, in order to fit herself for teaching. One afternoon, during this time, she was compelled to stop all work on account of a severe headache. She was becoming accustomed to having slight headaches, but, as a rule, they did not interfere with her work and she did not mind them. This one, however, was very violent, and the pain sharp, located in the back of her head and neck — while all the others had been across the frontal region — and was followed by other symptoms, until, on the second day, she developed what was called "acute spinal meningitis." This lasted only for a few days, and she resumed her work only to study harder in order to make up for the time she considered as wasted. For about two years after this attack, or until she was fourteen, she had but little discomfort or pain in her back, other than a tired feeling seemingly located in her neck. This gradually became quite constant and worried her, for she had not experienced it before, and it was occasionally — but more often than before her sickness — accompanied by headache. This, however, was seldom violent. At about this time she commenced to menstruate. This function was ushered in, and has continued to be performed to the date of this writing, in a

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perfectly normal manner. During the summer vacation of 1876, when she was in her fifteenth year, she attempted to do some lifting in the garden, and while doing this she felt "something give," as she expressed it, in her back, between the shoulders, which made her feel faint and sick for some hours. From this time on she has had trouble with and pain in her back constantly. At first she only had pain in the back of her neck when her head was bowed, as in kneeling or reading, and at such times she would get relief by throwing her head as far backward as possible. She described her sensations at such times as being "as if the cord in her neck and upper part of her back was too short." Her descriptions of her various sensations were always graphic, and so clear as to give one a very good idea of her meaning. In spite of this, she continued her studies and finished her normal school course. In the fall of the next year (1877), when she was sixteen, she commenced teaching, and continued it for a year, working at her studies all the time she was not in school teaching. During school vacation, in the summer of 1878, in her seventeenth year, she began a new study, which she entered into with great zeal. She worked very hard at this, and kept up with her teacher's studies at the same time, but did not allow them to keep her from taking recreation. This recreation was generally of some active kind; and while entering into these various sports, she met with several accidents, some of which confined her to her bed for several days at a time. Among these accidents were two or three that were quite severe — as a fall from a horse, and falling over a pile of stones that she was attempting to jump over. All these greatly aggravated, apparently, through the jarring received, the trouble with her back. In the fall of 1878, when she was eighteen, she resumed her teaching, keeping up the other study as well. Her ambition to excel led her to work hard at both, with the result of soon making her feel the "old, tired feeling in her back" more markedly all the time, both in the day and night; and this prevented her from obtaining, not

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only her full allowance of sleep, but even the amount necessary to preserve the equilibrium. She attributed this feeling to laziness — against her real convictions — and tried to throw it off. She failed in this, however, for it increased quite rapidly, and was soon experienced throughout the entire length of the spinal column, and seemed to involve the left sciatic nerve, for her left foot and ankle began to give her trouble. She also experienced, at times, a loss of power and sensation down the left thigh, through the knee, and down the inner part of the leg, owing to which cause she received several severe falls, the immediate cause of which seemed to be the giving way of the supports of the ankle, without the slightest warning, when she would be walking quietly. She had no pain, for a time, in the foot or ankle, but, as she described it, "the foot felt dead, and would get cold and clammy and look like the foot of a dead person." This lasted for several weeks; then a spot in the heel began to give her excruciating pain, feeling, as she said, "as if a bone would break through the flesh." She was treated for this by several physicians — for a long time without obtaining relief — and finally it began to get better. In February, 1879, while walking rapidly with the assistance of a cane, she turned her ankle, spraining it quite badly. This resulted in inability to step or bear any weight upon the foot for a year. During this year the leg shortened, so that her toes would barely touch the floor when she stood erect. At the same time her back became crooked — a marked enlargement appearing, and increasing in size steadily, above the left hip. For this she was put upon her back in bed, and forced extension of the limb was induced by weights attached to her foot. She was treated in this way for about three weeks, at the end of which time the enlargement of the back and the shortening of the leg had disappeared. After getting up from her bed, she had counter-irritation, and the Faradic current of electricity was used upon the lower part of her spine and down the course of the great sciatic nerve, and she was cautioned against using the foot without the help of the ankle-braces

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and the crutches. She took a moderate amount of exercise daily, using both the braces and crutches, but found that the latter increased the pain in the upper dorsal and cervical spine to such an extent that after a time she discarded them, without consulting her surgical adviser, preferring to run the risk, on her own responsibility, of the recurrence of the shortening of the leg, etc., to increasing the agony in her neck; but she continued to use the steel ankle-brace. After she had suffered for a year from these troubles — that is, in the winter of 1879–80 — she found that she could use the foot, if she exercised great care, without suffering much pain in it, the ankle, or the leg; so these parts were much better. But her neck, and her back between the shoulder-blades, gave her much more pain than they ever had before, and her general health was greatly impaired. The tired feeling was so much more marked that it required an exertion on her part to talk upon the simplest matters, or even to think, and she was so averse to making any exertion that oftentimes I have heard her say, "Oh, if I could only stop thinking, I believe that I could rest, and, may be, sleep." Her back commenced to become painful when touched, in addition to the pain which was now constantly present in the whole spine, so that she would sit erect all day and night in a chair, avoiding touching her back to the chair. When she was forced to change her position, she did so by leaning the body forward from the waist and resting her head upon a support contrived to stand in front of her for that purpose. She could lie down, for short intervals, upon a hard mattress or the floor, and did this sometimes. In March of this year I met her for the first time, in consultation with her attendant physician. A part of my investigation was the microscopic examination of both the arterial and venous blood, and I found the proportion of all other to the red corpuscles to be about one in one hundred and fifty. Matters progressed in this way until the summer of 1881 — that is, when she was in her twenty-first year — when she became so tired that she could not sleep at

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all—not even for fifteen minutes at a time. She could not eat a meal without vomiting; she had a dry and almost constant cough, which jarred her so that she would cry out at times; her respiration was sighing, and she constantly had flashes of heat and cold up and down her back, which were exceedingly painful to her. She had lost much flesh, and was easily exhausted by very slight exertion of either mind or body. But, in spite of all this, she had persisted in keeping up her studies, except during the latter part of the time—that is, the fall of 1881. Her stomach rebelled when any kind of food was ingested, and the pain in her back seemed to extend through the entire length of the spine—or, as she said, she felt as though her entire spinal cord was a pulp. Her sensitiveness to motion became so acute that a slight jarring, as of some one walking across the floor, or the shutting of a door, would cause the most intense pain. Occasionally she would have attacks when the pain would shoot through her body, especially the chest, and "take her breath away." The pain was almost always most severe in the left side. At other times she found that, although perfectly conscious of her wants and sensations, and of matters going on around her, she was unable to speak, or even to make a sound or move. She described the feeling of recovery from such attacks as this as "like an electric shock passing through her, or as if everything in and around her body had been drawn very tightly." Whenever she was able to get a little sleep she would feel much better for a few minutes, and then all the old pain and feelings would return with full force. Sometimes she would get a short period of relief by lying on one side on a hard bed, throwing her head as far back as possible, and extending her arms upward and forward. Whenever able to get into this position, she would doze and, possibly, fall asleep—only to awaken, however, in a few minutes, to find that she had changed her position and that the pain had returned.

This history I gathered, during a few days that I employed

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in becoming acquainted with the young lady and her trouble, by questioning and getting her to relate her story, which she did very clearly and concisely, and with remarkable intelligence. I found this of great help in treating her. After she had related the facts as I have given them, I asked her to tell me her most constant and prominent trouble. She immediately said, "Pain in my back, between the shoulders." I found in this region, on each side of and over the spines, a degree of tenderness that would not allow the lightest pressure without causing the intense pain referred to as passing through the chest. She had found that she would invariably eject any food taken early in the morning, so had discontinued both eating and drinking before the noon meal. She did not have nausea with this vomiting, but would throw up the food taken, with considerable force, immediately after swallowing it. This always increased the pain between the shoulders, but caused no other marked inconvenience. I discovered that I could cause this effort at vomiting by pressing with moderate firmness over the sides of the seventh cervical and two upper dorsal vertebral spines, and immediately prescribed small cantharidal blisters to be applied over this region, with the happy result of checking this trouble, to a great extent, so long as the irritation from the application lasted. Soon after this she began to complain of almost constant violent frontal neuralgia, which was generally accompanied by frontal headache, both always the most marked in the right temple. This I almost always succeeded in checking temporarily by applying liquor vericans close to the head, on both sides of the spine. She did not suffer at all from derangement of the digestive or menstrual functions, nor was there the slightest abnormality in the position of the uterus. About this time, while searching for some mental disturbance as a cause for marked and persistent despondency, I found that she was worrying over a social affair which had turned out unfavorably, as she thought. At the same time, she was despondent over her inability to keep up with her studies, the pursuit of

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which I had peremptorily forbidden — as I had her teaching, when called in consultation to see her a year before she came under my care. I tried to keep her mind free from worry by interesting her in various fancy works, and this seemed to answer its purpose for a time. Through all this time, however, I had not been able to induce sleep for more than an hour at a time, and that not oftener than once in twenty-four hours, and then only while she was sitting in the position before described.

During the winter of 1881–82 she persisted in walking, more or less, and on an impulse would run, not seeming to think at all of the pain she would invariably suffer after doing either. The reaction quite often caused attacks during which she would become rigid, and her pulse would lower to thirty or forty beats in a minute and become almost imperceptible to the hand when placed over the superficial arteries or over the heart; and the respirations would be lowered to from four to six or eight in a minute, sometimes being catching in character. All these symptoms would last for from one-half to three hours. I advised her to stay in bed, which request she ignored until after contracting a severe coryza, that became complicated by pleurodynia and pleuritis. She was confined to her bed, at this time, for three months — long after the pleurisy had disappeared — by a little deception in the plea made for her staying there, and had applied every other day, over the site of the spinal pain, a mixture of croton and mustard oils.

During the summer of 1882 she was comparatively free from severe pain, except at intervals of ten days or two weeks, and these attacks would not often last for over forty-eight hours, and were always relieved by the application of the oils mentioned. But she suffered almost constantly — more markedly, however, during the short, exacerbative attacks of pain — from inability to retain her food or medicine; and the insomnolence, which remained as it had been during her confinement, would not yield, even temporarily, in any great degree,

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to the use of chloral, bromides, or the opiates or other sedatives more mild in effect. These remedies were always given per rectum, for the vomiting was so constant and persistent, and so easily provoked, that I could not administer remedies per orem, other than minute doses of extract belladonna and spirits of ammonia aromatic — this last in one or two drop doses. Finally I succeeded in getting her to retain food by giving half-teaspoonfuls of toast wetted with boiled milk, with soft or hard boiled egg or some nutritive jellies, at ten-minute intervals. Feeding per rectum failed utterly, as after each dose, or, at most, the second dose, the bowel would reject everything that was introduced into it. During this time, however, the function of the bowel was normally performed, a whole day seldom passing without her having one movement naturally, but often this would be very small in quantity. Consultants gave me, at different times, the opinions that the trouble was sympathetic, with uterine malposition; that there was organic heart disease; that she suffered from a sort of chronic spinal meningitis; that she was hysterical, the cause lying in a tumor in the brain somewhere; that there was cerebral anæmia; and another, that there was general anæmia. The various remedies which I was advised to use for her were the iodides, the mercurials, iodoform, nitrate of silver, nitroglycerine, the bromides, chloral, hyoscyamus, belladonna, opium, cresaline, sulphate of calcium, digitalis, stimulants freely, a good blister on the back and another over the stomach and liver, cod-liver oil, and the ferruginous tonics. Two of the physicians agreed with me in thinking that her trouble was spinal irritation, and that the symptoms indicated anæmia of the cord as the cause. As for the treatment pursued, I persisted in using the measures that I had found to give the best results. These were counter-irritation from the use of a mixture of equal parts of croton and mustard oils, applied over the painful points in the spine at regular, short intervals, and arranged in location so as keep the back sore constantly at one or more points, according to the intensity of the attack.

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During the intervals between the attacks, every second or third day (this was for the alleviation of the pain and its immediate results, as well as for its derivative effect) I used belladonna for the headache; belladonna and aromatic spirits of ammonia for the vomiting—using these when made necessary by this symptom; and during the longer attacks, when this symptom was very prominent, I gave nourishment in half-teaspoonful doses every ten or fifteen minutes, day and night, using the most concentrated forms of food with stimulants. These remedies seldom failed to subdue the most persistent vomiting within twenty-four hours. I gave her digitalin after the attacks that seemed to involve the cardiac plexus most markedly, and I used any form of iron that I could get her to retain and assimilate whenever it was possible. Her general health improved so that, during the summer of 1882, she was comparatively comfortable; but I noticed that she always spoke, when I questioned her, of feeling very tired all the time, and often of her back hurting her between the shoulders.

In June, 1882, I noticed that there was quite a prominence of the sixth and seventh cervical and first dorsal vertebral spines, and quite a marked curvature toward the right side, in the lower dorsal and the lumbar regions. For this I advised daily suspension by the head, so that her toes just touched the floor, for from five to fifteen minutes at a time, and the measure was carried out religiously. About the 1st of October, 1882, these deformities had disappeared. One night, late in that month, during a violent thunder-storm, she went out on the porch, to watch a fire in the neighborhood, without being sufficiently protected; the result was a sharp attack of pleurisy, with pneumonia. This illness confined her to the bed for a month. She recovered from the lung trouble, but the pleurisy left its marks in a thickened pleura and a cough. She was not troubled much after her recovery from this until the fall of 1883, when she had an attack of pleurisy, with effusion, on the same side as her former attack, in 1882. This

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kept her in the house all the winter of 1883–84, and left her a rebellious cough. She had none of the aggravated symptoms of her spinal trouble until the fall of 1884, when they appeared at the time of her pleuritic attack; but counter-irritation and the galvanic current of electricity checked their progress. From that time to this she has been improving steadily. At this writing she suffers very little from the pain in her back; she eats three good meals each day; sleeps eight hours out of the twenty-four, and more, very often, if not aroused; walks as much as she likes; and attends to her light household duties with comparative comfort. She has not had a fit of despondency since the spring of 1884. She seems to suffer only from a slight pain in her back, and a frontal headache after any unusual mental or physical labor and slightly at her menstrual periods. She has gained flesh, and has a good, healthy color all the time.

This result has been a long time coming, but it has given me great satisfaction to watch the slow improvement; and I am in hopes that in a year's time she will be as free from pain and other symptoms of her disorder as if she had never suffered from them.

XII.

REPORT ON MEDICINE.

By G. P. Hanawalt, M. D., *Des Moines*, Chairman.

[Read before the Iowa State Medical Society, Cedar Rapids, May 20, 1885.]

Mr. President and Members of the Iowa State Medical Society:

To detail progress made or to enumerate failures recorded in matters pertaining to this section during the past year — a very small fraction of which record your chairman would be glad to know — would be impracticable, tiresome, and unprofitable; therefore, brief mention of one or two subjects, which,

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since our last meeting, have almost startled the medical world, will, by reason of brevity, be more acceptable to the Society than an attempt to undertake a review of the whole field of our section, as much of this work will be done by other members, who have so kindly consented to assist in the preparation of papers in this department.

Pathology, in the past year, has certainly "come to the front" in a manner at once preëminent and startling, receiving such impulse from the researches of the many ceaseless investigators and patient workers in the dazzling field of micro-organic life as the world's curriculum never knew, nor even dreamed of before. Not that all the ideas advanced — some of them seem monstrous enough, even if they *are* so well fortified by observation — are to be accepted as plain truths, and the author credited with special favors bestowed upon us who are not scientists to the degree necessary for thorough research in the more intricate questions of pathology; however, a denial of some of the more recent results, developed by the clear, keen eyes and deft, busy hands of so many devoted laborers in both hemispheres, would be to question the light of the mid-day sun. Nor is there source of trouble or vexation to us in the controversies of some of the discoveries in recent pathological lore; for instance, it is perhaps quite enough for us to know that the "cholera comma" exists, without our caring how its poison is generated or given off to the destruction of the human race. Whether its presence alone in the human body is the cause of the dreaded scourge of Asiatic cholera, or whether the minute *monster* may be swallowed with impunity and safely disposed of in that not undiscovered but certainly unestimated territory, the healthy human stomach, is a question which should not demand the attention of our profession for the next year or two so much as the consideration of what we are to do to shorten or destroy the life of this minute and destructive organism. No matter what its line of operation may be, we knew full well the results of its baneful existence long before we knew

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of its germ nature at all. And now we seem to lack only the knowledge of the proper germicide, or, better still, a prophylactic, and both wisdom and happiness, on the subject of cholera microbes, will be ours. Having the cause of so many grave maladies unmasked and well defined, we have more than reasonable hope that many of them may soon be shorn of much of their terror, to the great good of the world at large and to the lasting credit of those who may by their industry and devotion to so much that is distasteful and repulsive help to bring forward successful means of treatment.

The same indomitable work and will that have unearthed causes we hope and believe will develop *cures*. Medicine today seems to be poised nearer a high standard of rationality than ever before; and, with the spirit of quiet reasoning which pervades the work and writings of nearly all our recent authors, linked with their tendency to profoundly investigate a subject before publishing their views to the world, it surely is within reason to believe that these death-dealing enemies may soon be held in check by the strong hand of *rational* medicine.

Granting the alleged germ origin of so many ailments — scores in number — and that these same germs are swarming about us, in us, in our food, in our drink, and in the very air that we breathe, we turn with great faith to the small but select army of antiseptics and disinfectants for expected relief. Already the treatment of the more serious forms of fever is largely composed of the employment of well-defined antiseptics. And, perchance, from the more general use of cleanliness — strict and thorough cleanliness, God's free disinfectant — with the proper medication, we may soon greatly lessen the number and modify the virulence of the present deadly diseases.

Who of us has not noticed the antipyretic *force* — positively *force* — of the free use of pure, clean water in lowering the temperature in fever? And water should not be confined to the patient's person alone; his clothing and bedding, his room and house, and, if it were possible to issue a compulsory man-

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date, the whole neighborhood or city in which he lives, should be properly cleansed and disinfected. If, added to perfect external disinfection, we employ some of the later remedies known to not only modify but destroy germ-life when administered internally, we will doubtless have our reward in a marked decrease in death-rate from pyretic diseases. And most wonderful and blessed of all (if the theory shall stand the test of fair investigation) is the plan of *inoculation* for the neutralizing of all germic diseases, rendering them comparatively harmless, if at all serious.

All we know or can say of this profound question is that it is to-day undergoing trial by many close observers. Not very quietly or sparingly is it being looked after, if we may judge from a cablegram of the Associated Press of last Sunday, dated at Madrid, Spain, and stating that Dr. Ferran, of the province of Valencia, where the cholera was raging fearfully, had inoculated nearly five thousand persons, with the result of abating the disease in a great measure. Before another meeting of this Society we may have opportunity in our own fair Iowa to try the experience of this dashing Spaniard, unless our fully aroused eastern States shall strangle the scourge before it reaches our western plains.

The new remedy of the year, and the one which now perhaps attracts more attention than any other since the advent of ether and chloroform, is hydrochlorate of cocaine — at once the wonder and admiration of the medical and surgical world. Noting the many pages that have already been written in record of its success in the prompt and efficient relief of local pain; the ability of the feeblest patient, under its influence, to undergo the most delicate operations without suffering in the least, while the mind remains clear, the muscles obedient, and the operator most efficiently assisted by the patient — we can only admire this favored boon, and hope that its future use may not be confined to the surgeon and ophthalmologist only, but that its potency may soon be utilized and its supply made sufficient to allow its internal administration.

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Should future time reveal that this drug may be adapted to internal use, the vast amount of suffering caused by chronic gastro-intestinal maladies now so tyrannical may then be within our control. All hail, then, this bright star, whose dazzling track across our remedial sky will be a shrine for the homage of its thousands of grateful beneficiaries, and whose advent to the world, for the relief of millions of its sufferers will add another laurel to the glorious wreath of legitimate medicine!

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SECTION ON SURGERY.

XIII.

MALIGNANT DEGENERATION OF BENIGN TUMORS—WITH A CASE.

By C. M. Hobby, M. D., *Iowa City.*

The title is used to indicate an anatomical fact, without advancing any theory, as to the process, whether it be a specific degeneration, metamorphosis, or substitution. Malignant degeneration may be properly said to exist when a previously benign tumor assumes characters marking it as malignant.

There is no more interesting subject to the pathologist, and especially to the pathological histologist, than that of malignant tumors; and while the term "malignant" is appropriately used to cover a large variety of tissue growths, which by recurrence and transference tend to destroy life, yet it must be recognized that there are degrees of malignancy as well as anatomical variations of malignant tissues.

It is not the province of this paper to discuss the subject of malignancy from the clinician's stand-point, although at present the practical surgeon and the microscopist work hand in hand in the field of investigation, both recognizing the local origin of malignant growths and both the existence of a predisposing cause.

The tumors which are properly termed malignant are, *first*, the sarcomata (including gliomata), in which embryonic connective tissue predominates; and, *second*, the carcinomata, in which epithelial tissue predominates. To these may be added the endotheliomata, a rare and seldom recognized type of morbid growth.

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The sarcomata are divided clinically according to their location and general appearance, and histologically according to the particular form of connective tissue element found. The carcinomata are divided clinically in a great variety of ways, depending upon consistency, appearance, and location, and histologically according to the character of the epithelial tissue predominating — *e. g.*, the clinician makes a broad distinction between a scirrhus and a soft cancer, and a slight distinction between rodent ulcer and epithelioma (so-called), while the histologist only sees in scirrhus a greater amount of connective tissue, with an absolute identity of structural elements with soft cancer, and in rodent ulcer finds a different type from epithelioma, more closely related to the so-called scirrhus, yet not so abundantly supplied with connective tissue.

The development of malignant tumors, either sarcomata or carcinomata, from normal tissues, is certainly not well understood. Are we to look exclusively for a constitutional cause? Will a local cause ever by itself produce malignancy? or must we to a local cause add a constitutional predisposition?

Both carcinoma and sarcoma are supposed, by many, to result from local irritations; epithelioma of the lip is traditionally referred to the irritation of a pipe, and rodent ulcers are popularly supposed to result from pricking a pimple.

So far as the published observations of competent men go, very little that is definite can be found in reference to what may be called metamorphosis of benign into malignant growths, although such belief is constantly manifested.

There is great unanimity in the expression of belief that the papillomata undergo both sarcomatous and carcinomatous transformation. I have encountered a single well-marked instance. Dr. Post reports a case (New York Pathological Society's Medical Record, vol. xii., p. 12) of sarcoma developing from adenoma of the mammary gland. Cases of apparent sarcomatous transformation of fibromata are cited as examples of fibro-sarcoma from the outset, but it may well be believed that sarcomatous degeneration is possible in cases of fibroma. So

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also of neuromata, a name formerly applied indiscriminately to all nerve tumors. In a case of neuroma of the median nerve, forming a fusiform tumor four inches in diameter and extending from the elbow to the wrist, necessitating amputation on account of gangrene of the fingers, I found the fibers of the median nerve spread over the periphery of a spindle-celled sarcoma, which did not involve any of the adjacent tissue; the patient died, seven months after amputation, of sarcoma of internal organs.

Numerous cases of angio-sarcoma have been reported, and Rindfleisch (Lind. and Blak., p. 147) says: "We may also speak of a malignancy of the cavernous tumor, yet this malignancy regularly depends upon a distinctly pronounced complication with melanotic sarcoma, whose nodules and nodes develop in the trabeculæ of the cavernous tumor.

As bearing upon the possibility of malignant infection of primarily benign growths, the following case is reported:

A. B., a male child six months of age, suffering from a tumor of the anterior surface of the right elbow, came under observation March 12, 1884 — the tumor at that time measuring two and one-half inches in diameter by about three-fourths of an inch in thickness, its center located slightly below and to the radial side of the flexure of the elbow. The tumor was of a dark-red color, its surface denuded of integument and covered with a crust of dried blood. The child was anæmic and emaciated, and the history drawn from the parents, and the physician under whose care the child had been, was as follows: At birth the child presented a nævus at the point occupied by the center of the tumor, which grew rapidly. It received various treatment in the way of poultices and irritating applications, and had been pricked several times. After each pricking, hemorrhage occurred, and latterly the surface had become ulcerated and hemorrhages spontaneous: these had been controlled with difficulty by styptics. The tumor was incompressible — did not apparently diminish in size or become soft when the Esmarch bandage was applied

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to the whole extent of the arm. The general appearance of the tumor, its immobility, etc., gave the impression of malignancy. In the removal it was found to involve integument, superficial fascia, and to be firmly attached to the bicipital fascia, so that this had to be in part removed. Prolongations of well-marked angiomatous tissue were found extending beneath the integument on each side, and carefully removed. The tumor was supplied by six arteries requiring ligature. After removal, the tumor presented a markedly sarcomatous appearance, and although plainly composed of a large amount of vascular tissue, yet it had sufficient solidity to maintain its shape and consistency. After thorough hardening in Mueller's fluid and absolute alcohol, sections were made and stained. These sections showed the ordinary structure of angiomata — cavernous tissue supported by connective tissue and lined by endothelium, and branching masses of round-celled sarcomatous tissue. The sarcomatous elements predominated near the surface. Estimating from vertical sections, at least one-third of the tissue of the tumor was of sarcomatous character. The child has, up to the present, showed no signs of return of the disease, and has materially improved in health.

The peculiar character of the sarcoma cells, however, indicates a great probability of ultimate systemic infection. Many questions of importance, both to pathologist and clinician, are suggested by this case. The influence of irritation in causing a development of embryonic tissue — which in the one instance shall constitute an inflammation, and, in the other, a malignant growth — is one of them.

DISCUSSION.

Dr. McNutt made some remarks on the subject, giving his observations and experience in regard to nature and treatment, but the reporter failed to take notes on account of absence from the room temporarily.

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DR. VON MANSFELDE.— Cohnheim is the great teacher in pathology, and he claims that malignant tumors are due to a deposit of embryonic tissue somewhere in the body. The name of the paper is unfortunate. There is no such thing as degeneration of a benign into a malignant tumor, nor even the degeneration of sarcoma into carcinoma. The tumor that apparently degenerates contained the malignant germs originally.

Dr. Hobby does not agree with the view of Cohnheim as to the deposit of embryonal tissue being the primal source of cancer. He would like to hear opinions of surgeons on the effect of irritation on benign tumors, claiming himself that by this cause such tumors might degenerate into malignancy.

XIV.

BICHLORIDE OF MERCURY IN SURGERY.

BY G. P. HANAWALT, M.D., *Des Moines.*

That dressing for wounds and injuries which, by its texture, shape, or chemical qualities, shall conduce most toward positive rest, or even toleration, after the injury, will be the surgeon's favorite. To fill such requirements, various articles — fabrics, splints, lotions, etc. — have from time to time been used, and replaced by others intended to improve former conditions. To enumerate these in this paper would not only be useless, but almost impossible, for their name is legion — all intended to insure rest for the longest period, without frequent disturbance of the injury by necessary removal of dressings, constituting our modern idea of antiseptic surgical dressing; that is, keeping an injury in such condition as to render germ development difficult or impossible.

Recent researches, both in our own country and in Europe, have a strong tendency to assert boldly that the time-honored

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carbolic acid and the more recent, but scarcely less valued, iodoform, are not the best agents for antiseptic use. They are volatile: a texture prepared with them for dressing must be used when fresh, or it is of uncertain strength, and therefore unreliable. They are nauseous to many, because of their pungent odor; and instances of toxic complications as results of their continued use are not wanting. Last and least, how many of us can testify to the rough, almost cauterized or abraded, hands, after using even weak carbolic solutions. How gladly, then, will we welcome corrosive sublimate, which, in the language of Dr. Weir, of New York, is "an antiseptic more potent, safer, not volatile, and easily obtained everywhere." The reading of an excellent paper by the above-named gentleman, in January last, preceded by a conversation with his estimable partner, Dr. Henry Abbe, of New York City, on the subject now under consideration, induced my first experiments in the use of this (to me) new antiseptic — since which time it has been my standard, and has yet to disappoint me.

An idea of the germicidal property of bichloride may be gained from the fact that the recent developments by Koch, in Germany, and by Dr. Sternberg, in our own country, prove beyond doubt that, in a fluid literally creeping with bacteria, the organisms were quieted by adding $\frac{1}{30000}$ part of the salt, while $\frac{1}{20000}$ part ended all activity, present and future. The fluid thus treated failed to produce putrefaction in any other organic solution. Acting on this wonderful statement as to its antiseptic and germicidal qualities, Dr. Thallon, of Brooklyn, New York, adopts the use of the bichloride *internally* in the various forms of diphtheria, contending, with much reason, sustained by clinical proof, that a quite sufficient quantity may be taken into the system, with entire safety, to destroy, or at least to greatly modify, the septic process in the blood in this terrible disease. It is well worth a trial, for we all know with what feeling we regard the invasion of septæmic symptoms — the feeling of being far out at sea with neither compass, book, or anchor.

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And now as to method in surgical use. A solution containing eight grains to one pint of water — or, what is better, eight grains dissolved in strong alcohol and added to a pint of water — is nearly $\frac{1}{1000}$ in strength, and about the proper strength for general use — although this may be varied considerably, $\frac{1}{2000}$ being, doubtless, strong enough for most cases. Suppose that a compound fracture is to be treated: of course the parts are to be cleansed and adjusted (I mean really cleaned and scrubbed — shaved, if need be, and scoured), under an anæsthetic, if required; for if cleanliness is ever well repaid, it is in the grateful *appearance* of comfort about a *clean* compound fracture as compared with a *dirty* one. Then thoroughly bathe with sponges that have been soaked in and squeezed out of the above-named solution; every bit of dirt, blood, etc., should be mopped out — being careful to remove any useless fragments of bone or soft tissues — carefully bringing all parts as nearly to proper place as may be, and adjusting the limb upon whatever splint may be chosen, first enveloping the injury in oakum, absorbent cotton, or "cheese-cloth" (which has previously been wrung out of the bichloride solution), laid about in even layers, so as not to disturb by unequal pressure — the whole to be surrounded by a thin roller of crinoline, or gauzy material, likewise treated with the solution. This dressing is to be let alone until the oozing from the wound is seen on outside of dressing, at which time, if there is no marked increase in temperature, a few layers of fresh dressing may be applied, without disturbing the original, and again left for a day or two, when the dressing, sutures, and drainage-tube (if any have been used) may be removed, and a dressing similar to that used at first may be applied, and, in most cases, may be left for a considerable time — some for twenty, thirty, and even more than forty days, if we are to credit statements recently published; but I would not advise, much less practice, this continuous delay in removing dressings, as beyond ten or fifteen days it is thought that danger from septic complication has passed, and there is

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nothing gained by clinging to stale dressings when clean and fresh ones may be applied easily and with great comfort to the patient.

If an amputation has been performed, the vessels are to be secured with *catgut* ligatures which have been thoroughly soaked in the solution of bichloride and kept in absolute alcohol until used. The stump should be cleared of every speck of blood and debris of every kind by thoroughly wiping and pressing with the purified sponges and solution, as in case of fracture. After all oozing has ceased, and not before, the flaps are to be approximated carefully and united by the *continuous* suture — using the finer catgut, if choice can be made, treated as in case of ligatures — leaving ununited spaces only at proper places for ends of drainage-tube. The stump may then be literally slushed with the $\frac{1}{1000}$ or $\frac{1}{2000}$ solution by means of a fountain syringe fitted to the projecting end of tube and kept running until the liquid comes through *unstained*. The stump, including ends of tube, may be covered by ample layers of well-picked oakum, jute, cotton, or soft, thin fabric of any kind, and well bound with a thin roller — all of the dressing having been previously treated with the favorite solution. This thin and gauzy bandage is made use of because its light texture is not only comfortable to the patient, but allows the surgeon to detect the slightest oozing from the wound, thereby being able to decide when the dressings should be removed.

Perhaps the best time to remove the drainage-tube will be on the third or fourth day, leaving the sutures and ligatures to take care of themselves — which, if catgut has been used, prepared as directed, need give the surgeon no uneasiness, as they will readily absorb, leaving nothing to be removed, as in case of wire or silk. If at this time the dressings have become saturated by discharge, or if the patient's temperature has materially increased, a clean dressing throughout, much like the first, may be applied; but if there is little or no stain through outer dressings, and especially if comfort is the prevailing feeling, the drainage-tube alone is to be removed, and

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no further disturbance of parts or dressings made for two, three, or four days — perhaps longer.

As to toxic effect by absorption of this solution, the nearest I have seen was an attack of diarrhœa, possibly attributable to the dressing, in a weak girl, after amputation at the middle of the thigh — which, however, was readily controlled without abandoning the dressing. Dr. Weir states that, beyond a slight erythema about the edges of the wound, he has not seen anything like a poisonous effect from the use of this sublimate solution. This record will surely compare favorably, at least, with any of the well-known antiseptics.

Instruments may not be dipped into this solution, on account of its well-known corroding or marring tendency — a $\frac{1}{20}$ solution of carbolic acid being much better for that purpose. Dr. Abbe mentions the fact that immersing the hands alternately in solutions of carbolic acid and bichloride causes a dirty, blackish deposit in the crevices of the skin, which is readily removed by washing in a very weak solution of muriatic acid.

In conclusion, it may not be amiss to refer to the well-known virtues of this solution as a gargle — alike in diphtheritic or specific lesions of mouth and throat — and also to the testimony of leading dermatologists as to the satisfactory results of its use in acne. If, then, to its well-known virtues as a general remedy we add potency, cleanliness, and trifling cost, as an antiseptic, deodorizer, and germicide, we are not far from an ideal, *up-to-date* drug.

DISCUSSION.

Dr. Peck is not a believer in antiseptic dressings proper, and has discarded them long since. He favors aseptic management — that is, thorough cleanliness. Catgut ligatures are objectionable, as they are not safe and reliable. It is not proper to throw aside old and tried methods for those that are ephemeral in nature. The silk ligature has stood the test of years, and never disappoints the surgeon. The continued

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suture has had its day; no suture is the best, when possible. Drainage is the most important item in the treatment of wounds. Antiseptic surgery results in too much meddlesomeness in the management of wounds. Wounds are better off left alone after they are once thoroughly cleansed and put in a state of rest and pressure. Dressings should be very infrequently changed.

Dr. Guthrie asked if Dr. Hanawalt had seen suppuration occur under the use of the bichloride. The answer was "Yes."

Dr. von Mansfelde.—I am not a bacteria-maniac, and have not the fear of these microscopic bodies that many have; and yet, so long as there is any doubt on this point, it is best to be on the safe side. If so simple and harmless a remedy as bichloride of mercury can give any greater assurance of success in operations and the treatment of wounds, why not use it? I shall use it in all my cases. It is clean, odorless, easily handled, and the most desirable of all the antiseptics. Thorough cleanliness is the most important item in the treatment of wounds.

XV.

GANGRENE—CAUSE: AMPUTATION—DEATH. AN UNUSUAL CASE.

By J. W. Smith, M.D., *Charles City.*

January 20th, 1884, assisted by two physicians of Watertown, Dakota, I amputated, at the upper third, the right leg of C. B. Elwood, of Henry, Dakota. He was about twenty-five years of age—a strong, ambitious, hard-working farmer, whom I had known from his boyhood. It is said that slight sores were often slow to heal upon him. The limb was gangrenous to the lower third, and had been, as reported, for

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nearly a month. The line of demarkation was not so distinct as in some cases. His general health was only fair, so the case was not considered promising for amputation; but that was rationally indicated. There was good arterial circulation in the flaps; but no main arteries bled at all, and as they were not readily found, the limb was only carefully watched. The flaps, antero-posterior, closed, after hours, only by deep silver wire suture and plasters. There was no hemorrhage, and the stump healed about as rapidly and well as the average of cases.

Some hours after the operation, the sole of the left heel was found to be black — the spot being larger than a silver dollar — and it had been so for several weeks. It was discovered by complaint of terrible pain in the foot and ankle — the patient said "Just as the other one was before, or as it mortified." The pain was soon relieved; but I learned from the attendant physician, Dr. John Specht, and the family, that it continued to be painful at times, later swollen and œdematous, and at the time of his death, March 12th, it was also gangrenous to the lower third — the same as the other leg.

There were some other circumstances connected with the case that may justify some remarks upon the same.

What was the original cause of the gangrene? The answer must be uncertain, but it is proper to state that late in November the patient did considerable spading in very hard soil, where a pickaxe should have been used. He said his right ankle had been sore and painful for some time — as he thought, from such hard use of it. About Saturday, November 28th, he worked hard in a well, at spading. At night, while he was yet sweaty, and with no overcoat or other protection, he rode through the cold to his "claim" — two miles — on a rude ox-sled, and "got pretty chilly;" was quite sick that night and Sunday, but on Monday returned and again dug in the same well — his father-in-law's — returning home at night. That was his last work — nor did he again get out-of-doors. He was chilly and feverish for about a week; then both feet and legs became swollen and painful up to the

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knees — called it rheumatism for a time. At length the swelling and pain diminished, but gangrene occurred, probably gradually.

All went on fairly well for nearly two weeks after the amputation; then there was occasional loss of voice, if not of some power of motion. He thus, as I learned, lost and regained the power of speech several times. February 7th he had what Dr. Specht called a shock, or collapse, and all supposed his end was at hand; but he seemed to rally from it pretty well. I believe that temporary loss of speech and liability to call words wrong, etc., often followed such state of collapse. The head and face were swollen for some days, but the swelling finally disappeared. The left leg became more swollen, and finally, as stated, gangrenous, like the other. It may be said that I felt good pulsation, before amputating, in the popliteal space just above the knee.

My diagnosis before operation was "embolism," and correct, so far as it went; but was there not a change of the blood, that gave rise to the tendency to embolism, and which finally occurred in different parts of the body, the brain included?

XVI.

A LIGHT JACKET BRACE FOR THE TREATMENT OF SPINAL CURVATURE.

By D. C. Brockman, M. D., *Marengo.*

There comes a time in the treatment of nearly every case of Pott's disease when the surgeon feels the need of a light, flexible, and removable brace to take the place of the cumbersome plaster jacket the patient has been wearing. The hope that I may be able to describe an appliance to supply this need is my apology for this paper.

The treatment of Pott's disease consists in keeping up continued extension, making the parts of the spine invaded im-

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movable, improving nutrition by the best possible hygienic surroundings, and, if necessary, by tonic medication. The indications requiring continued extension and immobility are usually very satisfactorily met by the use of Sayre's plaster of Paris bandage, which should be applied during the early part of the treatment. In a great majority of cases, after removing the second or third bandage, we find the inflammation has subsided, and are satisfied that disintegration of bone has ceased; yet we feel that if all support be removed the softened bone will again take on active inflammation and soon be as bad as ever. Still we do not feel justified in compelling our patient to wear so unwieldly a dressing as formerly. Our choice lies between this and some of the complicated steel braces, and we are apt to again load the patient down with other plaster jackets, which in time are replaced by some expensive steel brace. Now, if we had a light, efficient, inexpensive, removable brace, we could, by its use, best serve the interests of our patron. Again, when a case of lateral curvature comes to us, we are compelled to choose between the heavy plaster bandage and a steel brace of some form. The former is too heavy; it cannot be removed to stimulate the muscles by friction, electricity, or other manipulation. Instead of assisting the weakened muscles in doing their work, and thereby allowing them to regain strength, it, by removing all activity, soon vitiates them and augments the weakness we are trying to remedy. The objections to the steel brace are legion, and need not be named to any one having had experience with them.

Feeling the need of something with which to supplement the plaster of Paris bandage in the treatment of angular curvature, and to replace it in the treatment of lateral curvature, I first used a shell of plaster, over which I made a flexible cover from muslin saturated with shellac varnish. This I found to answer the purpose very well in cases where it was not needed for any considerable length of time; but where it was necessary to continue its use for more than two or three months, I made

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a more durable apparatus by using, instead of shellac, the following composition: Glue, one part; zinc oxide, two parts; water, six parts. Dissolve the glue in the water and add the zinc. My plan is to suspend the patient and apply a very light plaster bandage — not more than two thicknesses of cheese-cloth loaded with very fine plaster; allow the patient to remain suspended till the plaster sets, when the bandage is carefully slit up the front, carrying the incision through the undershirt, and allowing the entire dressing to slip over the hips to the floor. It is now removed to the table and filled with cotton batting, being careful to keep it in its original shape. Apply a coat of heavy shellac varnish and let it dry. This so strengthens it that it may be handled freely without breakage. Bring the cut edges together, and tie a string around it, holding the edges in contact. Apply another coat of varnish, and immediately a muslin roller and another coat of varnish, being careful to saturate the muslin thoroughly. Place vertically, at intervals of one to two inches, narrow steel springs — those of ordinary hoopskirts will answer — cut two inches shorter than the bandage. Apply another coat of varnish and roller as before, and, if necessary, a third layer. Then cut the bandage open again over the line of former incision. Varnish the inside in the same way, and line with canton flannel, laying the smooth side of the cloth against the freshly varnished surface, to which it will firmly adhere. In cutting out the lining, make allowance for enough to lap over two inches at each edge of the brace. This overlapping flap is brought down over the edges of the bandage and securely fastened with more shellac. This forms a firm binding for the entire bandage. After it has thoroughly dried, make eyelets, with a shoemaker's punch, down the front, one inch apart, for the purpose of lacing, and the bandage is ready to put on the patient. Lace up as tightly as you please.

For lateral curvature a modification of great value, first suggested by Dr. Vance, of New York, can be made by a

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web of rubber — such as is used in making Martin's bandages — stretched across the inside of the bandage, one end fastened in front and the other behind, so that when the brace is applied to the body this band stretches tightly over the convex surface of the thorax, thus causing a continual corrective pressure from that side. In order that its force may not be resisted by the opposite wall of the brace, a space must be left between the brace and the body on the side of the concavity. This can be done by opening the corset part way down the axillary line and lacing it up loosely.

XVII.

DELAYED STRUCTURAL CHANGES FROM GUNSHOT WOUNDS, INVOLVING NERVE TRUNKS AND CENTERS.

By H. C. Markham, M.D., *Independence.*

The surgery and medicine of the Rebellion will have become a completed study only when those engaged therein have passed away. The medical literature relating to the war era itself constitutes a mass of facts that, for completeness of classification and loyalty to detail, stands without an equal, and will be of value as long as surgery and medicine exist. It would be singular, and not in harmony with American genius, if, from the vast body of sick and wounded men sent over the entire country to their several homes, and falling into the hands of practitioners everywhere, no experience worth recording in the treatment of this host should be realized. That the progress and results of wounds and diseases incurred in the service, and under observation since by physicians throughout the country, have developed facts of interest and value, is certain, the difficulty being the isolation of cases, making impossible any statistical study or classification.

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European governments generally assume the care of their invalid soldiers, while the sick and wounded veterans of our armies returned to conditions in civil life as different as were themselves from the average European soldier. The conclusion necessarily follows that the action and behavior of wounds and the sequelæ of diseases incident to military life may, and probably do, essentially differ with us from those whose record we obtain from transatlantic authorities. None of us can forget the picture — in years past so painfully familiar — of the furloughed invalid hero, whose emaciated form and nerveless arm were in piteous contrast with the erect soldier who marched away. The critical observer was nevertheless usually able to detect a sparkle of the sunken eye — the presage of future complete occupancy of the half-filled orbit.

Of the numerous forms and types of diseases and injuries which fell into the hands of medical men throughout the North as a heritage of the great struggle, two may be mentioned as paramount in number and importance — viz., chronic diarrhœa and gunshot wounds. A large proportion of these cases were treated mainly at their homes, being sent north as early as their condition would permit. It is not our purpose to consider at any length the disease which at one period nearly decimated our armies, making it (chronic diarrhœa) more potent for evil than the bullets of the enemy. But few cases of this disease now exist, and such interest as attaches to it results from a general retrospect, as showing the marvelous recuperative power of the system under improved conditions. The nearly uniform absence of sequelæ in a disease so extensive and grave is also somewhat notable. Intestinal catarrh seems less prone to result in structural changes than that of other portions of the mucous membranes. The following cases of gunshot wounds are from notes of observations upon claimants examined for pensionable disabilities. Nearly twenty years have elapsed since the original injuries were received, and the chief point of interest rests in this fact. That the morbid processes described should for so long a period be

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delayed, and then, after many years of latency, develop themselves, is not easily explained. It is possible that the influence of the laws of growth, or structural nutrition and maturity, may be involved, as they occur in men who, when wounded, were in the period of growth, adapted, as all know, to rapid repair and apparent recovery. These men have now reached the age regarded as the physical climax, when the forces and vitality of the system begin their decline.

A. B., Twenty-seventh Iowa Volunteers, received in battle, in 1863, a bullet which entered the right arm just below the external fold of the axilla. The bullet was never extracted. The wound healed, with difficulty, after considerable sloughing and loss of tissue. Partial use of the arm soon returned, which use gradually increased, enabling him to perform ordinary farm work, until three years since, when the vicinity of the wound became painful. The pain increased, extending below the elbow, being paroxysmal and intense. The muscles of the arm became weak and flabby. This atrophy gradually extended to the fore-arm, hand, and fingers, pursuing a steadily progressive course. The arm is now shrunken, palsied, and wholly useless.

R. T., Third Indiana Infantry, was wounded in the battle of Gettysburg by a bullet entering the left arm three inches above the internal condyle. It coursed upward, making its exit near the insertion of the deltoid. The claimant states its healing to have been slow. Good subsequent use of the arm followed, except impaired strength in extending it. Six years ago acute pain began to be felt in the track of the corresponding ulnar nerve. The fore-arm and last three fingers became weak, involving, at length, the entire hand. The fore-arm measures nearly two inches less in circumference than its fellow. The hand and fingers are cold, shrunken, and palsied.

P. M., First Ohio, had his ring-finger removed at the knuckle for bullet wound of the same received in the service. No trouble ensued until about five years since, when pain began to be felt in the corresponding metacarpal bone. This

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finally became so tender and swollen as to require removal. Its substance was found to have become chalky or calcareous. This morbid action invaded the adjacent bones of the hand, wrist, and arm, which will necessitate its ultimate amputation.

J. K., Third Wisconsin Infantry, received a bullet three inches below the left knee anteriorly, passing between the tibia and fibula, and making its exit nearly opposite. The wound is stated to have healed well and permitted his reënlistment. Two years since he noticed a numbness of the foot, making its first appearance near the inner malleolus. This has developed into complete paralysis of the ankle and foot. The muscles of the calf and ankle are flabby, causing the ankle to turn upon receiving any weight, as in walking.

None of the cases given are of special interest, aside from the fact that after apparent recovery, continuing for many years, morbid changes should ensue.

XVIII.

PERI-TYPHLITIS — ASPIRATION — INCISION — ACUTE GENERAL PERITONITIS — DEATH — POST-MORTEM.

By M. G. Sloan, M. D., *Dexter.*

J. B. S., aged twenty-five years, previous health good, came to my office for treatment on May 12th, 1883. Gave a history of severe pain in the right inguinal region, commencing about two weeks previously, the pain immediately following his kicking vigorously at a colt and missing it. This pain gradually grew less severe, and after a few days he resumed his labors on the farm, but was not free from a sense of discomfort at the seat of the previous pain. On May 10th, while engaged at heavy work, he received a severe wrench or sprain in this same right inguinal region, followed by severe

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pain. To relieve this, he took a large dose of somebody's patent pills. (The bowels had been acting regularly all the time.) The pills operated very thoroughly and caused most intense pain all through the abdomen. Two days afterward he made his visit to my office.

On examination, I found in the right inguinal region a deep-seated, non-fluctuating tumor, giving every evidence of being the result of peri-typhlitic inflammation. I advised the patient to get home with as little jolting as possible (he had seven miles to ride, and the roads were very rough), and then to go to bed and have hot fomentations constantly applied to the part. I gave him quarter-grain morphia powders, to be taken as required to control pain. On Sunday night, May 13th, I was called to see him. Found him suffering considerable pain. Temperature, 100½; pulse, 90. Continued same treatment. May 15th Dr. Likes, of Winterset, saw the case with me. Condition about the same, except the addition of a severe hiccough to previous symptoms. With the aspirator removed about a tablespoonful of fecal-smelling pus from the abscess. From this date to May 23d there was no special change in the patient's condition, except that the temperature gradually became normal and the hiccough ceased. Removed, each morning, with the aspirator, from six to twelve ounces of thick pus having a decidedly fecal odor.

On the 23d, at my request, Dr. Hanawalt, of Des Moines, saw the case with me, and we decided to make an incision into the abscess cavity. Chloroform was administered, and the incision (about two inches deep and half an inch wide) was made by inserting the knife by the side of the aspirator needle as it rested with its point in the abscess cavity. Unaccountably to us, no pus flowed from the incision at the time, but about forty-eight hours afterward it began flowing freely, and continued to do so to the end, gradually losing the fecal odor. On the day after the incision was made, I inserted the aspirator needle through the incision and applied suction force. Pus flowed freely for a short time, and then the flow suddenly

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stopped. On removing the needle to ascertain the cause, I found, projecting from its lower end, a white hog's-bristle, about two inches in length; and I suppose this bristle, having been swallowed by the patient, had passed into the vermiform appendix, and there created the irritation resulting in peri-typhlitis.

Normal-appearing evacuations from the bowels took place occasionally, in spite of our efforts to prevent it by the free use of opiates, etc. They were every time followed by increased abdominal pain; but no serious trouble resulted from this until Thursday, May 31st, when, immediately after a movement of the bowels, severe abdominal pain was experienced, soon followed by a pronounced chill, ushering in acute general peritonitis. The abscess continued discharging freely, as before, so that I could not think there had been any escape of pus into the cavity of the peritoneum, and could find no other cause for the peritonitis than the free movement of the bowels at a time when there was a special susceptibility to this disaster from the irritation caused by the abscess. Shortly after the chill, his pulse was 120; temperature, 103. Considerable tympanites. Ordered morphia to be given hourly until the pain was entirely subdued; also, turpentine stupes to abdomen. On the following day, June 1st, nausea and vomiting were so troublesome that the opiates and liquid nourishment were given entirely by the rectum.

June 2d. Tympanites so great as to interfere seriously with the free action of the heart and lungs. Pulse, 180 to 200; temperature, 101. Extremities cool. Face bathed in cold sweat. He continued in this condition until Sunday afternoon, June 3d, when I again visited him, not expecting to find him living. Believing that the upward pressure against the heart and lungs, from the enormous tympanitic distension of the abdomen, had much to do with the extreme frequency of the pulse (which was still in the neighborhood of 200), I plunged the smallest sized aspirator needle first into the transverse colon, then into the stomach, quite a quantity of

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gas escaping through the needle in each instance, and unquestionably giving the patient a temporary respite from death. Within half an hour the pulse was 130, and the breathing much less labored, but there was no perceptible improvement in any other direction. On the morning of the 4th, the tympanites and extremely quick pulse being again present, I again removed the gas with the aspirator needle, with the result of lessening the pulse rate at least forty beats. In the evening I repeated the use of the needle, with the same result. As the stomach could be made to retain nothing, stimulants and opiates were given per rectum.

The character of the material vomited during the 3d, 4th, and 5th was peculiar, being as nearly as possible the color of green grass, and having an offensive odor, but not stercoraceous. On Tuesday, the 5th, there were large and frequent evacuations from the bowels. The vomiting still continued, so that no remedies could be administered, except hypodermically. The tympanites disappeared, but there was a great increase of tenderness, on pressure, over the whole abdomen. Death took place at 9:30 o'clock P. M.

One peculiar feature in the history of the case has been omitted. On May 14th, there being retention of the urine, I passed an ordinary silver catheter and removed about two pints of urine. The instrument was readily introduced, and there was no hemorrhage nor pain at the time; but in about an hour a most violent and atrocious pain was felt at the base of the bladder, and extended to the end of the penis. It was described by the patient as of a burning and cramping character, and was evidently very severe. I administered one-fourth of a grain of morphia hypodermically, and finding, in the course of half an hour, that this gave no relief, I administered chloroform, and was obliged to continue this for *more than four hours* before this terrible pain would let go its hold. While the pain lasted, the whole course of the urethra was hard and swollen, forming a ridge-like elevation as large as my finger. The same catheter was passed a number of times, subsequently, without causing any discomfort whatever.

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Post-mortem.—This was held at 10 o'clock A. M., June 6th. I was assisted by Dr. E. F. Linton, who had seen the case with me once or twice toward the last. The abdominal cavity only was opened. Evidences of acute peritonitis were abundant. The intestines were everywhere adherent, and in numerous places were attached to the parietal peritoneum by recent lymph. The abdominal cavity contained about a quart of sero-purulent liquid, containing flakes of lymph in abundance. The walls of the abscess cavity were about a quarter of an inch in thickness, very firm, and were attached to the apex of the appendix vermiformis. At the bottom of the abscess cavity lay an intestinal concretion about as large as an ordinary kernel of corn. There was no discoverable communication between the abscess and the abdominal cavity.

The criticism which I myself would make on the treatment of this case is, that the incision should have been made at an earlier period in the history of the case; but I hope that its narration will result in a full and free discussion, by the members present, of the principles which should govern us in the management of these cases.

XIX.

THE IMMOVABLE DRESSING IN THE TREATMENT OF COMPOUND FRACTURES.

By J. M. Emmert, M.D., *Atlantic.*

The immovable dressing in the treatment of fractures, either compound or simple, is of ancient date; but, like many other surgical procedures, it fell into disuse. It was revived by Larrey, in 1825, after which time it made more or less rapid progress. Since its readoption by the profession, its history is of more than usual interest. Probably there is no other surgical device that has had such enthusiastic advocates or as bitter opponents. While it was receiving laudations from

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some of the most distinguished surgeons of the different parts of the world, it was receiving the condemnation of others equally as able and brilliant. While one surgeon was proclaiming to the profession that the refusal to apply the immovable dressing to a fractured limb was depriving the patient of the most scientific treatment, and uselessly entailing upon him weeks of suffering, another was proclaiming it unsafe, unprofessional, and criminal.

To-day, while many surgeons recommend it in hospital practice, they condemn it in private practice. It seems to me that the profession has been too ready to accept this view of the matter, and have not given it the trial it deserves. That a prejudice has been created against it by the teachings of Professor Hamilton and other equally eminent surgeons, I have no doubt. That the dangers arising from its immediate application in well-selected cases of fractures have been greatly exaggerated, any one can convince himself by a fair and conscientious trial. In treatment of simple fractures — especially of the long bones — it presents so many superior qualities over all other plans of treatment, that it seems to me its universal adoption is merely a matter of time. In its immediate application in the treatment of compound fractures, the question of sealing up the wound in the integuments or treating them by the open method is what I more particularly desire to present to this association.

My experience with this treatment in compound fractures is limited, but it has been so satisfactory that I have no hesitancy in saying that the complete and permanent closing up of the wound is the very best method of treating this class of injuries. By this treatment we come nearer converting a compound into a simple fracture. By it we apply Listerism in its most simple and perfect form. The injury in the fracture of a long bone is rarely limited to the bone. The fragments, driven in opposite directions, penetrate the adjacent tissues, wounding and lacerating them to a greater or less extent. When these injuries to the soft tissues are subcutaneous, and

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there is no chance for the air to come in contact with them, they rapidly and perfectly heal. It is my opinion — and my experience bears me out — that the contact of the air with the lacerated and torn tissues does no damage if the wound is sealed up before it becomes foul and unhealthy; and I believe the germs we are so anxious to keep out of wounds, by sprays and other contrivances, are harmless until this condition of things takes place. In one of my cases, the tibia was fractured and thrust through the integuments, and remained so for nine hours; but, being replaced and the wound closed up, it showed no evidence of suppuration a week afterward, when it was opened. Yet this wound began to suppurate in twelve hours after being exposed to the air. This proved to me that the contact of the air had no detrimental effect upon a wound until it had undergone some kind of a change. The wound, until it was reopened, was in a similar condition to a subcutaneous injury to the soft tissues in a simple fracture. If this proposition be correct, then if, by any contrivance, we can convert a compound fracture into a simple one, or put the injured tissues in as good condition for repair as in a simple fracture, we are certainly placing our patient in the most favorable condition for complete and rapid recovery.

The great bugbear in the treatment of fractures by the immovable dressing has been the fear of extensive and sudden swelling, and, in a compound fracture, the covering up or concealing of the wound from inspection, rendering it impossible to make frequent examinations, and thereby incurring the danger of a leg or arm becoming gangrenous before the surgeon knows it. If he be so ignorant that he cannot recognize the excessive swelling, and consequent gangrene, except by opening up the parts and inspecting them, he should not attempt to take charge of an injury of this kind. There are just as sure and reliable symptoms of all these complications as ocular inspection — and they generally present themselves much earlier. If the apparatus produces much pain, with a temperature much over one hundred, and cyanotic appearance

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or throbbing of the toes, the bandage should be removed — and it is fair to presume that gangrene cannot take place until these premonitory symptoms appear. If none of these symptoms are present, and the patient does not have a great amount of pain, it is not necessary to inspect the parts and put the patient to unnecessary suffering. If the bandage is properly applied, and the pressure is equitably and uniformly distributed throughout, the danger of these complications is reduced to a minimum.

In the application of the immovable dressing, the procedure is about as follows: First, the patient is fully anæsthetized; this is done to relax the muscles and relieve pain — it also gives the surgeon a better opportunity to examine the injury. Properly adjust the fragments; the wound should be explored by the finger, if necessary, all fragments and spicula of bone removed, and all extraneous matter, such as clots of blood and shreds of muscles, cleared away. It should be thoroughly cleansed by sponging, and, if large, drawn together by one or more interrupted sutures. A piece of lint should be laid over the wound. A flannel bandage should now be applied snugly from the toes to some distance above the fracture. Dr. Dennis prefers a roller of absorbent cotton to the flannel bandage. During the application of the dressing, extension and counter-extension should be made, and continued some time afterward, or until the dressing hardens. I do not believe it necessary to make the extreme extension and counter-extension, as taught in Bellevue Hospital some years ago. This may be necessary in some very large and muscular limbs, but in several simple fractures of the thigh treated by me all that was necessary was for a man to pull steadily and firmly during the application. If plaster of Paris is used as a solidifying substance, it requires but a few moments to harden enough to hold the parts in position. I prefer plaster of Paris, for the reason that it dries much quicker than any other substance and adapts itself more perfectly to the parts.

In preparing the bandage, the best material is cheese or

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dairy cloth. Tearing the strips from two to four inches wide, as the case may demand, the plaster, being reduced to a perfect powder, is rubbed into the meshes of the cloth, by the hands or some other means, until it will hold no more; it is then rolled and dropped into a basin of hot water, and allowed to remain until air-bubbles cease to rise to the surface, when it is ready to apply. A little salt added will insure its hardening much quicker. In applying, commence at the toes, being careful not to draw them too tight or crowd them together; for if you do, you will find it necessary to cut down your bandage, in a very few hours, to relieve the pain caused by their being crowded out of position. I have a basin of the dissolved plaster, about the consistency of cream — in which I dip my hand during the application — which is rubbed or smeared over each turn of the bandage to increase its strength. The bandage is now carried some distance above the fracture, and as many layers applied as is necessary to make it firm and strong.

I do not desire it to be understood that I would treat every case of compound fracture in this manner; but suffice it to say that in all cases where the wound in the integument is not too extensive, and the laceration is not so great as to exclude the hope of repair without suppuration, this treatment is adopted. In those cases where suppuration is inevitable, a fenestrum is afterward made and treated as an open wound. Meddlesome surgery is as dangerous as meddlesome midwifery; and the surgeon who is everlastingly removing the splints of a fractured limb and exposing it to useless examinations is interfering with the efforts of nature to repair the damage, and the patient is tortured merely to satisfy the curiosity of the surgeon. If the surgeon is satisfied that he has properly set the fracture, and the patient is resting easy, without any alarming symptoms, it should certainly be left alone.

The following are brief histories of four cases of compound fracture treated by the immovable dressing:

William J., a farmer, aged thirty-five, while attempting to

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drive a hog from his field, was knocked down, the fall producing a compound fracture of the left tibia, in the lower third. The messenger arrived at my office while I was away, and Dr. Breneman visited the patient and set the fracture, making extension by means of adhesive plasters. During the night these plasters gave way on one side. I visited the patient the next morning in company with the Doctor. We removed the strips and applied the plaster of Paris bandage. In three days the patient was almost free from pain, and in ten days he was up on crutches. The bandage was removed in six weeks, when the wound was found completely healed, cicatrix looking healthy, and there was no ulceration of the heel or any other part of the limb. The temperature at no time was above 99½, and his appetite was good throughout, so that when the bandage was removed he felt almost as strong as before the injury — which could not have been had he been confined to his bed during the treatment.

Ralph W., farmer, aged fifty-three, while intoxicated, was thrown from his wagon, producing a compound fracture of the tibia, in the lower third. This injury was almost a duplicate of the first. The plaster of Paris bandage was at once applied. Subsequent pain was so slight that the patient was on crutches in three days, and in two weeks went to Atlantic, a distance of three miles. The bandage was removed in six weeks and the wound found healed, with the cicatrix looking healthy. There were no ulcers or chafing of any part of the limb.

Horace F., farmer, aged twenty-three, was thrown from a load of hay, producing a compound fracture of the tibia, about the middle third, the tibia protruding about two inches; wound in soft tissues extensive. I did not see him for nine hours after the injury. The protruding bone was so dry from exposure, and the periosteum was stripped off and torn to such an extent, that it was a question of sawing it off or returning it. The wound was explored, and a wedge-shaped piece of bone, about two inches long, was found detached and removed. Hemorrhage had been extensive. After cleansing the wound thor-

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oughly, it was decided not to saw off any of the tibia, and it was returned. A number of interrupted sutures were taken and the edges of the wound brought into apposition, a piece of lint laid over it, and the plaster of Paris bandage applied in the usual manner. The third day the temperature was 100, pain and swelling considerable. At the end of a week the temperature was below one hundred, pain less, and the toes showed no unusual swelling; but, as there was some discoloration of the bandage, with an offensive smell, there was a fenestrum cut into the bandage. The wound was found to be perfectly clean and healthy, and showed no appearance of suppuration. It was granulating nicely, and in every respect was doing as well as could be expected. The smell was from decomposed blood that had been absorbed by the bandage, some bleeding having taken place after its application. The wound was afterward treated daily with carbolized oil. In two weeks the bandage was found so weakened, by the absorption of oil, that it was removed and a new one applied. In four weeks more the bandage was again removed, but union was found to be incomplete. Again the bandage was applied and the patient recommended to bear some weight on the leg. After this union gradually became complete.

Samuel L., stockman, aged thirty, was thrown — or, rather, jumped — from his buggy while the horses were running away, striking the ground upon his feet. I saw him in about half an hour after the injury, and found a fracture of the lower end of the fibula, known as Pott's fracture, with complete dislocation of the ankle. The foot was turned outward, and the inferior end of the lower fragment was turned inward and forward. There was some laceration and contusion of the integuments over the inner malleolus, but not enough to produce a compound dislocation. This case does not properly come under the head of compound fracture, but as the immovable dressing was applied immediately, I desire to give a brief history of it in this paper.

After reducing the dislocation and fracture, the plaster of

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Paris dressing was applied. The injury was produced August 8th, 1884. On the 9th the temperature was 100, pulse 95; 11th and 12th, temperature 100; but as there was not an excessive amount of swelling or pain, the bandage was not removed. The patient took about one-fourth grain of morphia at night. On the 13th, 14th, 15th, and 16th he felt easier. Temperature, 99; pulse, 80; appetite fair. The morphia was stopped — he slept well without it. On the night of the 16th his father, an old man of eighty years, was taken very sick, and died on the 18th. My patient became very nervous and excited from the sudden illness and death of his father. The temperature ran up to 101 in twenty-four hours, pulse rapid, swelling and pain rapidly increasing. The bandage was removed the morning of the 18th. Found the leg swelled as much as the bandage would permit, but no evidence of constriction or gangrene, and no sloughs or ulcerations except over the inner malleolus, where the tissues had been lacerated. At this point the integuments were highly congested, and finally sloughed, producing a large ulcer. There also formed, in the course of four or five days, a small abscess over the external malleolus. The leg was put into a fracture-box and every means adopted to keep the fragments in apposition — which I found almost impossible to do. This treatment was followed until September 15th, when Dr. Hanawalt was called in consultation. There being no union, and as there was evidence of suppuration in the joint, the foot was amputated.

It may be possible that some other treatment in this case would have given better results; but the extensive injury to the joint and integuments, with the excitement and grief caused by the death of his father, produced complications rendering it impossible to have saved the foot by any treatment. I am satisfied that the plaster of Paris bandage had nothing whatever to do with producing the conditions which rendered it necessary to amputate the foot.

If we except this case, the treatment of the cases presented was not only entirely satisfactory to myself, but the patients

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were more than delighted to be able to be about on crutches in a few days, when they expected to be kept upon their backs for a month or more.

The treatment of compound fractures by the immovable dressing was ably presented by Dr. Dennis, of New York, in a paper read before the American Medical Association, in Washington, last year. He records one hundred and forty-four cases of compound fractures treated mainly by the plaster of Paris dressing, without a death from septic poisoning. I do not believe any other treatment can make as good a showing. Out of fifty-eight cases of compound fracture of the leg, the plaster dressing was applied in forty-one. Dr. Dennis is not very explicit about the time when the splint was applied. In some cases he says "Plaster of Paris bandage applied at once;" in others, "Applied with fenestrum," but does not say at once or immediately. The recovery was good in all of the forty-one cases in which the plaster of Paris dressing was applied. These cases were all compound fractures, many of them presenting extensive wounds of the soft tissues, some complicated by injury to joints. Out of the forty-one, in twenty-seven the wound was sealed up, there being no fenestrum made in the bandage afterward. Some of the cases treated in this way were among the worst presented in the statistics. Dr. Dennis has not only demonstrated that very severe wounds can be completely closed up with entire confidence that they will kindly heal, but he has shown by statistics that septic poisoning is less frequent by his method than by any other.

It is not necessary for me in this paper to give the views set forth in the different text-books on surgery. While some recommend it in hospital practice, they do not recommend it in private practice. Others recommend it only in peculiar fractures. Hamilton, I believe, recommends it only in the treatment of Pott's fracture. Others condemn it *in toto*.

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XX.

INJURIES OF THE SPINAL CORD.

By L. J. Alleman, M.D., *Boone.*

Accidents to the vertebral column derive their chief importance from the relations and proximity it bears to the spinal cord. The spine serves several distinct offices in the skeleton: It is a pillar for sustaining weight; a girder for connecting distant members; an elastic, jointed mechanism for motion; a supporter of the ribs for breathing; and a tube for containing the most vitally important organ, next to the brain — the medulla spinalis.

The safety of the spinal cord is secured in various ways. Being lodged in the center of the column, it occupies neutral ground in respect to forces which might cause fracture; for it is a law of mechanics that when a beam, as of timber, is exposed to breakage, and the force does not exceed the limits of the strength of the material, one division resists compression, another laceration of its particles, while the third, between the two, is in a negative condition. Applying this principle to the vertebral column, it will be seen that the violence which leads to fractures is, in the majority of cases, directed so as to bend it forward; consequently, the anterior segments will be subject to compression, the posterior to laceration, and the intermediate will be in a neutral state. The structure of the bodies of the vertebræ and intervertebral cartilage are calculated to resist undue pressure; the posterior part, by its numerous fibers and elastic ligaments, is equally adapted to resist the efforts of a rending force; and the spinal cord, situated between these two, occupies the place of least danger. The spinal cord is guarded by the elasticity and flexibility of the column. As each vertebra meets the next below at three distinct surfaces of contact — the body and two articular processes — it follows that when the superincumbent weight falls

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upon it, the pressure is distributed through these different lines of support. In the bodies the force will be broken by the intervertebral cartilage — acting as buffers, in the articular processes, by their wedge-shaped articulation.

Another provision for the protection of the spinal cord is seen in the way in which it is attached, with its membranes, to the interior of the vertebral canal. The cord is small compared to the area of the canal. The dura mater, instead of being in close contact with the osseous surface, as it is within the cranium, is separate, except at the foramen magnum. On the sides it is attached by the sheaths it sends off to enclose the spinal nerves as they emerge at the intervertebral foramina, and also by the denticulate ligaments which are attached on either side of the cord, between the anterior and posterior nerve roots. The arachnoid membrane is so far from the pia mater, which invests the cord closely, that a layer of subarachnoid fluid of considerable thickness intervenes and surrounds the cord. Thus the medulla floats, as it were, on a water-bed.

The spinal cord is about eighteen inches in length, its weight about one and one-half ounces.

In studying the literature of spinal injuries, we are confronted by the work of Dr. Erichsen upon "Spinal Concussion," who advocates that every injury to the spine, however slight, is full of danger to the sufferer. On the other hand, we have the work of Dr. Page on "Injuries to the Spine and Spinal Cord," who devotes his main energies to pulling down some of the pathological creations of the London Hospital surgeons' fancy.

I have no original investigations to offer, nor details of my personal experience (although it has been sufficient to impress me with the importance of the subject and with the unsatisfactory views concerning it), but wish to call attention to mooted questions regarding injuries to the spinal cord and their sequelæ.

Under the term "Concussion of the spine" Dr. Erichsen

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includes four different conditions: *First*, concussion of the spinal cord itself. Here a jar or shake of the cord disorders or suspends its functions without causing any detectable lesion. *Second*, spinal hemorrhage and compression. *Third*, acute and subacute inflammation of the meninges and cord. *Fourth*, chronic meningitis and myelitis, consequent upon simple concussion of the cord, apoplexies, or acute or subacute inflammations. He describes, as resulting from and following these injuries, the following symptoms as evidence of an injury to the spinal cord: Changed countenance; defective memory; confused thoughts; loss of business aptitude; changed temper; insomnia; abnormal temperature of the head; perversion of the special senses; visual defect; asthenopia; photophobia; spectral rings, stars, flashes, and sparks; hearing variously affected, with noises various in quantity and quality; taste and smell perverted; perverted sense of touch; speech rarely, but occasionally, affected. The attitude is stiff and unbending, and there are various motor and sensory disturbances of the lower extremities.

I think Dr. Erichsen's teachings and their implications are as follows: He claims that there is such an injury as concussion of the spinal cord pure and simple, with temporary arrest of the functions of the cord; that it may be followed by recovery (and generally is), or by death or chronic disease. That there is such a thing as concussion of the spine wherein the whole vertebral column, with its envelopes and contents, is jarred or injured in various ways. That an injury to the spine or body (to the spine especially) may prove most serious, and that trivial injuries may cause serious organic disease of the cord or its membranes. That spinal irritation, hysteria, and allied nervous troubles may result from slight injuries to the spine and the nervous shock of the accident causing them. That malingering and serious visual troubles occur. In support of these views, Dr. Erichsen reports thirty-one cases in detail, of which nine were the results of railway accidents.

The above is a synopsis of Dr. Erichsen's views, as I under-

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stand them. Allow me to call attention to the views of Dr. Page, as I understand them. His position, in respect to the class of injuries under consideration, is this: That concussion of the spinal cord, pure and simple, is unproven and extremely doubtful; that the spinal cord cannot be injured or contused, by shakes, blows, or violence to the body, without a solution of continuity in the spinal column. That the cases followed by softening and death, or by symptoms of myelitis, are cases of spinal apoplexy or compression of the cord. That injuries to the spine very rarely, if ever, produce chronic non-fatal forms of meningitis, myelitis, or so-called meningo-myelitis; that the symptoms attributed to these conditions are the results of lumbago, strains and rupture of muscles and ligaments, injury to the peripheral nerves, and general nervous shock, setting up neurasthenic and neuromimetic disorders. That the term "concussion" is arbitrary, vague, and misleading; that these neurasthenic and neuromimetic disorders, though often serious, are not fatal, but tend toward recovery. That, the symptoms being mostly subjective, it is difficult to exclude deception, even with honest patients.

From a comparison of these views with those of Dr. Erichsen, we may learn what are the disputed points regarding the effect of injuries to the spinal cord. The mooted points are:

First, can external violence cause a simple concussion or contusion of the spinal cord, or are the cases so considered examples of spinal hemorrhage, or dislocation, separation, or fracture, with compression of the spinal cord?

Second, whether jars or blows ever or often set up chronic inflammation of the cord or its membranes.

Third, will serious organic visual trouble result from railway and other accidents in which the cord or spine is injured, but not the eye directly?

As to the first proposition, we know that after violent blows or falls persons suffer from temporary paraplegia. Whether this is due to molecular disturbance of the tissue of the cord or to a spinal hemorrhage, the clinical facts are the same, and

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in either case are caused by contusion of the substance of the cord or a rupture of the vascular vessels.

In "Holmes' System of Surgery," Vol. I., page 196, under an article on "Concussion of the Spine," a case is reported of a man injured by a fall from a railway van, striking on his head and shoulders, followed by instant paralysis of upper and lower extremities. He lived sixty hours after the accident. On making a section of the cord, a clot of blood was found lying in its center.

In the "International Encyclopedia of Surgery," Vol. IV., page 188, under an article on "Concussion of the Spinal Cord," there is reported the case of an officer shot by a cannon-ball (round), which grazed his left lumbar region in such a way as to open the abdominal cavity and let out some intestine, resulting in instant death. Surgeon Page, United States army, thinks he must have died from shock, as there was no solution found in the continuity of any organ on *post-mortem*. The case is cited, as it is not improbable that the shock caused death by producing concussion of the spinal cord. Another case (same page), by Ashurst, is that of a man who fell from a vine, dying in four hours. Necroscopy revealed fracture of six upper dorsal vertebræ, several ribs, and the skull. On page 190 is given the case of a coal porter who slipped and fell down a stairway, a sack of coal falling upon him. There was loss of motion in both arms and legs. He died in thirty-four hours after the accident. Necroscopy revealed contusion of the cord opposite the third and fourth cervical vertebræ, ecchymosis of the posterior horn of gray matter on the left side and of the adjacent parts of the lateral and posterior columns, and separation of the bodies of the fourth and fifth vertebræ.

Syme ("Principles of Surgery," third edition, page 437) states that the cord may have its function suspended by concussion, as does the brain. He says, however, that an effusion of blood or serum probably complicates these cases.

Dr. John A. Liddell (American Journal of the Medical Sciences, Vol. XLVIII., page 305) expresses his belief in simple

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spinal concussion, and relates three cases illustrating it, as he believes. The paraplegia in these cases could be explained, however, by injury to the peripheral nerves or by hemorrhage. In the first case cited, compression of the cord by hemorrhage was the cause of death. In the second there is no evidence that there was spinal concussion, but there was evidence of a general shock. In the third there was fracture of the six upper dorsal vertebræ, several ribs, and the skull. In the fourth there was contusion of the cord and ecchymosis into the lateral and posterior columns. Liddell's cases do not prove concussion of the cord. Syme admits that an effusion of blood or serum complicates these cases.

Second, whether jars or blows ever or often set up chronic inflammation of the cord or its membranes without a lesion of the vertebral column. Chronic myelitis and meningitis are serious, and eventually fatal, diseases; therefore, if railway and other accidents produce them, pathologists would see them. It is to this pathological class that Dr. Erichsen relegates a very large part of his reported cases. Meningitis and myelitis are, as we have stated, serious diseases; yet the cases Dr. Erichsen describes do not die. Are they not cases of strain or rupture of muscular and ligamentous structures, injury to nerves, or the result of a general nervous shock? The spinal cord has, in fact, nothing to do with the disease.

As to visual troubles, I doubt very much if the chronic functional disturbance under consideration can ever produce any real organic trouble with vision. Is not the largest class of troubles resulting from accidents and so-called injuries to the spine due to general functional nervous disturbance? The fright, excitement, and more or less bodily injuries often produce a profound shock. From this the nervous system gradually emerges into a state that may result in debility, morbid irritability, and defective inhibition. The patients then furnish a series of symptoms that correspond with those of neurasthenia, as described by Beard, Mitchell, Erd, etc., and they have been aptly termed "railway hysteria" and "*hypochondriasis*" by Dr. Allen McLane Hamilton.

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XXI.

FIBROID GROWTH IN THE COLON, PRODUCING OBSTRUCTION.

By J. M. Emmert, M.D., *Atlantic.*

P. G. G., aged 26, was taken sick about September 17th, 1882, with pain in the bowels. Not having a movement from the bowels for some days, he took several doses of cathartic medicine. Getting worse, and his bowels not having moved, he called Dr. Pogue, of Wiota, who found him suffering intense pain over the abdomen, of a spasmodic or griping character. He prescribed an opiate, which relieved him for some hours. The next day the Doctor diagnosed obstruction of the bowels.

I first saw him the evening of September 24th, when I obtained the following history: Parents both dead — mother died of scirrhus of the breast; father found dead in bed, supposed to have died of heart disease. No history of cancer in any other member of the family. Patient enjoyed good health up to eight years ago, when he was thrown backward from a wagon, falling upon a frozen clod of ground, and striking upon the buttocks. He said he was severely injured, but not confined to bed. After the injury he passed blood from the bowels for some weeks, and ever afterward his bowels were constipated, seldom moving without taking a cathartic.

I found the patient in the following condition: Pulse rapid and weak; temperature normal; colicky pains over the abdomen, with tenderness on pressure; there was considerable gaseous distention; had vomited, but no fecal matter; the countenance anxious and pinched.

I agreed with the Doctor in pronouncing the trouble obstruction of the bowels, but could not determine the cause. We attempted to relieve the obstruction by passing a long rectal tube and injecting large quantities of olive oil; but it

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was retained only a few moments, and failed to do any good. When I saw him next day, his bowels were greatly distended and the pain had increased in severity. We now informed the patient of the gravity of his case, and suggested an operation. The accommodations being very poor, his brother insisted on moving him to his home, in Atlantic. Very soon after reaching Atlantic he vomited freely, the matter presenting the odor and appearance of feces. The patient was evidently growing worse rapidly, and the family insisted on an operation at once. With the assistance of Dr. Pogue, of Wiota, and Drs. Egan, Graham, and Findly, of Atlantic, I operated about ten o'clock at night. Having opened the abdominal cavity, the intestines at once protruded, being distended with gas and showing signs of severe peritonitis. We carefully searched for the point of obstruction, but were unable to find it. Being unable to find the constricted part, we returned the intestines with great difficulty, and only after puncturing with a hypodermic needle at several places. The patient died twelve hours after the operation.

Post-mortem twelve hours after death. There were evidences of severe peritonitis throughout the abdominal cavity. About two inches below the splenic flexure of the colon was found a tumor or hard mass. On removing the colon and cutting open the gut, the growth was found to completely encircle the canal, almost entirely closing it. At the upper edge and to the left was found an opening through the bowel, through which some fecal matter had passed. The serous and muscular coats of the gut were not involved in the growth, it apparently being confined to the mucous and cellular. Specimens were sent to Dr. Middleton, of Davenport, and to Dr. Fairchild, of Ames, for microscopical examination. Dr. Middleton reported that the mass had no truly cancerous details, it being simply fibrous. Dr. Fairchild also reported that the specimen was a fibrous growth.

The question arises whether the injury received eight years previous had any connection with the growth. There was

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severe injury to the bowel at that time, as there was hemorrhage for several weeks. I regard the origin of the tumor as traumatic, there being a rupture or laceration of the mucous coat of the gut, which, healing, left a cicatricial band encircling the interior of the colon. We know that cicatricial tissue is prone to take on fibrous or fibro-cartilaginous degeneration under pressure or irritation. The constriction at this point would stop the onward flow of the feces, causing a damming-up of the bowel, thereby keeping up an almost constant pressure, and removed only when softened by saline cathartics.

I have been able to find but slight mention, in the medical works at my command, of fibroid growths in the intestinal tract. The disease is rare, and the text-books say but little about it. Gross does not even mention the subject. Bristowe, in Reynolds' "System of Medicine," says "It is met with occasionally in the bowels, where also it constitutes one form of 'scirrhus.' Its chief, perhaps only, seats are the sigmoid flexure and the rectum, where it produces effects resembling, in almost every particular, those which have been described as belonging to true scirrhus. It seems, however, to differ from that in its purely local character and in the absence of all secondary deposits, as well as in its elementary constitution."

XXII.

A NEW METHOD OF TREATING PARONYCHIA.

By T. J. Maxwell, M. D., *Keokuk.*

We in the medical profession, like mankind in general, are disposed to stumble over the pebbles, or little things, while we either go around the mountains or toil painfully up their rugged heights.

With this preface, I desire to call your attention to a plan for the treatment of ingrowing toe-nails. A disease so com-

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mon, so very painful, and requiring so serious an operation for radical cure — extraction — ought to be sufficient to attract the surgeon's earnest attention if, peradventure, he may be led to discover a less formidable, more speedy and certain cure than that of partial extirpation — the one recommended by our latest authorities on surgery.

Paronychia is a disease that may arise from various causes; but the one we have to do with, and which is the most prolific of all causes, is that of pressure caused by ill-fitting shoes. Side pressure causes the lateral folds to rise up over the nail and the lateral edges of the nail to cut into and lacerate the groove or sheath, causing inflammation, suppuration, and granulation, attended by more or less hypertrophy of the affected fold, until it rises far above and overlaps, with painful, exuberant granulations.

Various methods besides the extirpation of the whole or a part of the affected nail have been devised, the best of which is described by Kaposi, viz.: "A little bundle of charpie, with parallel threads, somewhat longer than the nail, is cut and laid on its upper surface, parallel to the lateral fold; by means of a flat probe the mass is now pushed down, thread after thread, between the swollen and inflamed lateral groove and the edge of the nail, then dressed with a compress and plaster." Although I have never treated a case after Kaposi's method, it aims at the true method, and measurably fulfills the indications, but less perfectly than a plan that I am about to describe, and which I have pursued, to the exclusion of all others, with perfect satisfaction to myself and patient, as it has been without a single failure to cure.

The indications for treatment are: (1) to lift the edge of the nail out of the inflamed and suppurating groove; (2) to repress the swollen and granulating margin that rises up and overlaps the nail; (3) to maintain them in this relation.

The plan on which I now purpose to fulfill these indications is as follows: Take a strip of clean, smooth tin-foil (such as is used to protect the corks of quinine bottles) half an inch

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wide and one and one-half inches long; half an inch from one end fold it back upon itself, and lay the strip, thus folded, upon a smooth surface, so that the short fold is uppermost; now lay a spatula or knife-blade across the small fold one line from the flexure; turn the small portion back over the blade in the direction of the first fold, the last consisting of two plies of foil. Take a strip of Meade's adhesive plaster half an inch wide and a foot long. The inflamed toe should be prepared by sponging with a five per cent solution of carbolic acid in glycerine. We are now ready for the application. The edge of the imbedded nail is best lifted by carefully inserting under it the small blade of a pocket-knife with the edge rounded off. While the edge of the nail is held as high as possible, take up the strip of foil, prepared as directed, turn the small fold downward so that it will be across the nail; insert the little fold under the edge of the nail and carefully push it back as far as possible, so that it will reach the whole length of the lateral fold; now take hold of the long end of the foil and separate it from the short end, so that the short end can be held in contact with the upper surface of the nail, while the long end is carried back of the inflamed border, pressing it outward and downward, and as the folds of the tin-foil separate the hooked portion under the edge of the nail lifts it out of the granulated groove, and the long end compresses the swollen margin and effectually keeps it separated from the nail. It is now confined by the application of the adhesive plaster, being careful to apply the end of the plaster to the affected side of the toe, passing it under and around to the opposite side of the toe, then over the top of the nail, so continuing the turns of the plaster until the toe is entirely covered and the foil completely secured in position. The dressing may remain for four or five days and then be renewed. There are but few cases that will require more than three or four dressings. I might have stated that where the nail is very thick it is sometimes necessary to scrape it thin in the center, or groove it, so that it will act as a hinge, bending at

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the thin part, thereby avoiding the tendency, in such cases, of forcing the opposite edge of the nail into the groove. The patient is allowed to at once resume his or her ordinary business, generally expressing great satisfaction in the freedom from pain and the comfort of the application.

XXIII.

CONSERVATIVE SURGERY OF THE HAND AND FOOT.

By H. L. Getz, M. D., *Marshalltown.*

There is, perhaps, no other department of surgery where opportunity is so frequently afforded for what is known as conservatism in practice as is found in injuries of the hand and foot. A person with one foot and two hands is in a better condition to earn a livelihood than he or she who has but one hand and two feet — this, at least, is true in the great majority of instances.

Some of the reasons why we should practice conservatism in surgery of the members of the body to which we herein refer are to preserve utility of the part, so far as possible, and avoid mental depression, which, as it seems to us, sometimes follows the loss of upper or lower extremities, or portions thereof. This mental depression results as a consequence either of (1) keenly realizing that there exists a permanent deformity, which, at best, can be remedied only by the application of artificial means, or (2) a sense of such physical disability as renders them incompetent to provide by physical labor, in a satisfactory manner, for themselves and their families; and, as a consequence, there follows discouragement, depression, dissipation, and general worthlessness, and perhaps it might have been almost as well for the man to have died in the attempt to save a hand or a foot as to have him

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die a wreck, from grief and dissipation, a few years later — a disgrace to himself and to his kin.

There exists no doubt, in our mind, of the fact that many distal portions of extremities — hand or foot, or parts thereof — are sacrificed in primary amputations which could, and should, be saved by proper care. We believe that surgeons too often feel that their business is to cut whenever opportunity affords, forgetting that they would more fully and creditably perform their duty if they operated only in the event of no alternative. In this they may be aptly compared with the physician who feels, when he is called to see a patient, that his sole and only business, since he is a physician and the patient has sent for him, is to dose with medicine of some kind, without ascertaining whether medicine is really needed, sometimes even forgetting, seemingly, that a diagnosis should first be made. All this can be accounted for, we believe, by the fact that in most, if not all, medical colleges, students are shown how to do this or that operation, and much time is given to the discussion of the various methods by which a *certain* operation can be performed, and very little time or attention given to the proper treatment of injured parts with a view toward saving them — and here we may suggest that the surgeon who takes the chances of saving an injured part is properly the *bold* surgeon, and not, as it is usually conceded, the one who takes *no* chances and swings his knife with a flourish amid fresh blood. We incline decidedly to the opinion that primary amputations *never*, except where there is no possible chance of saving a part, are the means direct of saving life. Why, then, the necessity of rash decisions and actions on the part of the surgeon? It is true, a part once amputated, it may be easily (and naturally would be) asserted by the operator and his counsel or assistants that there could positively have been no recovery of the part, when, perhaps, if the patient or friends had positively refused to have an operation performed, nature, with rational aid, would have done such wondrous work in the way of repair that, in all probabil-

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ity, she would have made prevaricators of the men who positively asserted that there was no hope of saving the part. Many are the little monuments of repair after injury attesting to the wonderful power of repair by nature in instances where the assertion had been made that "it must be amputated," or, "it can never be saved;" and there would be many more instances to attest to the reparative powers of nature if injured parts were more often given an opportunity for nature to repair them, properly aided by art, except the knife. We do not wish to be understood as saying to amputate primarily under no condition, for that is not our position, but to amputate primarily in minor injuries only such part or parts as are hopelessly, and beyond the shadow of a doubt, destroyed.

The class of individuals among whom conservatism is perhaps most often called for are railroad employes. These injuries are largely of a contused or lacerated nature, and it is often not only difficult, but impossible, to determine the real extent of mischief done to the soft parts until a sufficient length of time has elapsed for the circulation to be reëstablished and the line of vitality clearly marked — and for the latter several days are commonly required. The care of such injuries as come under our topic is to be thought of, for we believe that much can be done by proper treatment toward saving these parts.

The usual method of dressing this class of injuries (contused and lacerated) is, in most instances, by the application of carbolic acid and applications of cold water. Other applications are also often used immediately after the receipt of an injury. As for the carbolic acid, perhaps it answers as well as any remedy we have at our disposal, when applied of proper strength, which is, we believe, in the proportion of about one part of the acid to twenty parts of oil or water. We have considerable doubt as concerns the propriety or *rationale* of the application of cold water to recently injured parts, and have always found much more relief and satisfaction in warm or hot applications. Cold continuously applied,

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instead of aiding in relieving the injured blood-vessels, has a tendency to contract them, and acts as a barrier to the prompt and easy reëstablishment of the circulation and vitality. No one would for a moment think of making cold applications to aid the detachment of a slough; consequently, the use of cold applications shortly after the receipt of an injury is but retarding the progress of the case, for in contused injuries of any moment a certain amount of sloughing of necessity occurs.

We shall not dwell long upon the use of local applications or of medicines to be employed internally. Suffice it to state that, to facilitate the formation of a demarkation line or the detachment of sloughs, linseed meal moistened with carbolized oil and then prepared with boiling water and applied in the usual manner makes a very desirable poultice. This may be changed as often as deemed beneficial. Should any inflammatory or erysipelatous action manifest itself, the free use of tincture of iodine or tincture of iron will be found highly beneficial in checking such inflammation when applied to all portions of skin involved which remain intact. Taken internally, there is, perhaps, nothing superior to quinine and iron, which are conveniently administered in the form of an elixir, and to an adult should not be given in less than tablespoonful doses every three or four hours where there is much constitutional disturbance in the form of fever or any symptoms simulating blood-poisoning. When the sloughs have detached and the constitutional symptoms have subsided, all medicines may usually be dispensed with and the wound or injury treated as any granulating wound, and, once the granulations are well established, the process of cicatrization may be much hurried by proper skin-grafting.

We shall not make any special suggestions in reference to amputations of the foot, for, as between the hand and the foot, we consider the latter of the least importance, and as affording much less opportunity of making a portion of it serviceable than is usually the case with injuries of the hand. Every good surgeon, however, should be prepared to make such mod-

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ifications upon the different established methods in amputations of the foot as will result in the greatest utility of the part to the patient.

As respects the hand and wrist, we have some suggestions to offer, and call attention, in particular, to injuries of the hand where the carpal bones are involved. This class of injuries is, perhaps, most frequently produced by geared machinery, the hand being drawn into the wheels and the parts mangled and crushed above the hand. Experience has taught us that not only are flaps not necessary in amputations of the hand, but also that a useful fragment of a hand may be preserved where much or the greater portion of the wrist-joint has been removed. We claim originality for systematizing the following modes of amputation of the hand involving the wrist-joint, and contend that if but one finger or a thumb can be saved by either of these methods, it should always be done; and while flaps are always preferable in these, as in any, amputations, a finger should never be sacrificed for the sake of being able to make a lateral flap over the metacarpal or carpal bones.

This sketch which we present represents an injured hand, the same having been drawn into the cog-wheels of a barbing machine. We here also produce the remnants of the ring and little fingers attached to the corresponding portions of the wrist-joint. The parts we show you were mutilated, as you see, and the tissues were torn from a large portion of the other part of the hand, from the palm and dorsal surfaces, and the tendons and muscles were seemingly all that was left of the soft tissues over the course of the metacarpal bones of the second finger. We divided the hand, between the second and third fingers, in a straight course (it was this choice or amputation of the fore-arm), extending it through the wrist-joint, which had been bared by the cog-wheels having torn the tissues from it. Desiring to leave intact as much as possible of the joint, the os magnum was divided and the parts disarticulated. There was at no point sufficient flap to cover either

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the wrist-joint or the metacarpal bone of the second finger. The hand and arm were placed upon a flat splint, with the hand portion directed outward at an angle of about thirty degrees. The wound was dressed with marine lint and carbolized oil, and the parts healed, by process of granulation, without an unfavorable symptom or a fragment of bone detaching.

The favorable termination of this case led us to carefully examine the wrist-joint from a surgical view, for the purpose of arriving at some systematic method for amputation through the wrist-joint, by which means one or more of the digits might be saved where the wrist-joint may have been injured to a degree requiring removal in part, and where a portion of the hand requires to be similarly dealt with. We make the following suggestions, which we believe are original, and which we will class, under our method, Nos. 1, 2, 3, and 4, modifications of which may be made.

No. 1 consists in the removal of the thumb, metacarpal, trapezoid, and about one-half of the scaphoid bone. A modification of this amputation may be made by the removal of thumb, metacarpal, and a part or the whole of the trapezium.

No. 2 consists in the removal of the index or first finger, metacarpal, trapezoid, and about two-thirds of the scaphoid bone. and the os trapezium, the thumb and its metacarpal bone. This may be modified by removing a part or the whole of the parts referred to, except the scaphoid.

No. 3 consists in the removal of thumb, first and second fingers, with their corresponding metacarpal bones, the trapezium, trapezoid, scaphoid, os magnum, and about one-half of the semi-lunar bone. This may be modified by removing all the above-named parts except the scaphoid, semi-lunar, and about one-half of the os magnum, the latter being divided in a transverse direction.

No. 4 consists in the removal of thumb, first, second, and third fingers, with corresponding metacarpal bones, and all of the wrist or carpal bones except the pisiform, cuneiform, and

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the outer half of the unciform. This may be modified by removing only the outer half of the unciform bone.

We have thus spoken of the removal of the hand in a direction from within outward. These same amputations and their modifications may be made through the wrist-joint, commencing by the removal of the little finger, beginning with operation No. 4 and following down to No. 1, and leaving, perhaps, only the thumb, its metacarpal bone, the trapezium, and a portion of the scaphoid. In performing these operations on the hand and wrist-joint, some of the carpal bones will require division with the saw; others may require smoothing by bone-forceps. Trimming of the articular surfaces of the carpal bones may be practiced or omitted, as pleases the operator. We would suggest removing the articular surfaces, when exposed, for the reason that, in our opinion, these parts, like other bony surfaces, will heal over more readily if the articular surface be removed.

Our principal object in preparing this paper was to bring *especially* to your notice these operations of the hand and wrist-joint — which operations can always be done with at least a reasonable degree of safety, so far as the patients' lives are concerned. We believe that there is too often a disposition, in severe injuries of the hand and wrist-joint, to sacrifice these parts and amputate at the fore-arm. If, then, we have succeeded in directing your attention to this important surgical subject, and shall thereby, directly or indirectly, be the cause of saving for some unfortunate but the one-fifth part of a hand, we will feel that our efforts have not been entirely in vain.

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SECTION ON OBSTETRICS AND GYNECOLOGY.

XXIV.

REPORT ON OBSTETRICS AND GYNECOLOGY.

By J. Williamson, M. D., *Ottumwa.*

As chairman of the Committee on Obstetrics and Gynecology for the year just past, it becomes my duty to report to this Society the advancement made in this department of medicine since its meeting one year ago. In the discharge of this duty, I am made aware of the fact that it is not, in every instance, an easy matter to decide between a real advancement and what is only a seeming one. In these days of intense activity in all fields of labor, many discoveries are for a time upon the surface, engaging the attention of men, only to pass away and be heard of no more. It must be apparent to all that the few months intervening between the meetings of this Society are too short a time in which to decide upon the true value of novelties in medicine and surgery, or to do anything more than to speak of them as before the profession for its approval or disapproval. Of more consequence, therefore, is it to examine into the present state of opinion on the merits of certain measures and therapeutical agents undergoing discussion, whether new or old.

It may be claimed for all departments of medicine that none are stationary, but all are moving forward in a way to inspire the greatest hopefulness of the future; and probably in none is there found more eminent talent or untiring zeal than in the department of obstetrics and gynecology. Nor is it true that our country is merely a borrower from countries where

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science is encouraged by governmental aid. We are making, from time to time, contributions to the general stock of scientific achievement which compel the respectful recognition of co-laborers abroad. In mentioning this fact, I am reminded that since this Society last met one distinguished in this department, and whose name is honored in all lands, has put off his earthly habiliments and gone to his reward.

J. Marion Sims died of heart disease, November 13th, 1883, in the city of New York. Of him and his contributions to gynecological art, and his place in medical history, I do not propose to speak. As Americans, we will cherish his memory with peculiar pride; but genius such as his belongs to no one country, and hence honors were liberally bestowed upon him by kings and crowned heads of the Old World. It is fitting that his countrymen should erect a monument and inscribe his name thereon — not that this is needed to perpetuate a name so illustrious, but as a grateful expression of our appreciation of his beneficent achievements for womankind.

I invite the attention of the members of the Society to a few subjects around which a very general interest has centered since our last meeting; and first, it appears that the place which

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is to permanently hold in obstetrical practice is far from being settled. A reaction has set in against it, and many condemn it as an unmitigated evil. At the Cleveland meeting of the American Medical Association, a year ago, Prof. Reamy made a vigorous attack upon it, and did not fail to elicit an approving response from the members of the section. Drs. Englemann, of St. Louis, and Albert H. Smith, of Philadelphia, are equally pronounced in their opposition; and so of others, at home and abroad. I am not aware that anything new has been discovered in its action upon the organism of mother or child; but old objections have been reconsidered, in the light of a larger and more carefully observed clinical experience, with the result of giving additional emphasis to old objections.

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It must be admitted, I think, that much of the opposition is owing to the abuse of the article in the hands of practitioners who fail to discriminate as to the conditions in which it is indicated. It is urged that it is often given to overcome uterine inertia, when rest is what is needed; that it is given to increase the force of pains, without stopping to inquire into the capacity of the pelvis; that it is given under the false notion of hastening delivery, when it can only excite tetanoid contractions of the uterus, and so defeat the end in view; that it renders manual and instrumental aid impossible and dangerous; that it causes the death of the child by cutting off utero-placental circulation, and also by the continuous compression of the body of the child; that it is one of the causes of rupture of the uterus and perineum; that, given in the last stage of labor, with a view to preventing hemorrhage, it incarcerates the placenta, preventing its spontaneous expulsion or its removal by hand. These are the leading objections that are urged against ergot. Charpentier, a French writer, and author of a late work on obstetrics, formulated this rule in the use of ergot, which, perhaps, is the safest and best that has yet been given: "Never use ergot until both child and placenta are in the world." Summing it all up, it may be said that ergot is out of favor with intelligent, prudent practitioners, and that Charpentier's rule best expresses the intelligent conclusions of the profession to-day.

Another subject on which there has been a change of opinion is known as

CREDE'S METHOD OF EXPRESSION OF THE PLACENTA.

The old saying that "Meddlesome midwifery is bad" seems to have been forgotten of late years. The great expectations growing out of the many new discoveries, more or less valuable, and the many new procedures in surgery, lead the zealous-minded to accept anything new that happens to come from the workshop of a "progressive" leader in his particular specialty. Out of deference to such *dicta*, much assistance has

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been rendered to nature where little or none was needed. The perineum has been manually supported, stretched, retracted, oiled, and flanked by digital maneuvers through the rectum. The uterus has been pressed into the pelvic cavity, squeezed, and otherwise roughly manipulated, to assist nature in a normal function.

But what is Crede's method of expression of the placenta? Avoiding traction upon the cord after the expulsion of the child, Crede advised the accoucheur to lay his hand upon the abdomen over the site of the womb and make gentle friction. When the uterus is felt to be contracting, it is to be seized with one or both hands, placing the thumbs in front, and when the contraction reaches its maximum the organ is to be kneaded with thumbs and fingers, pressing it in the direction of the cavity of the sacrum. Manipulated in this way, the placenta may come away with the first pain, but generally not until the third or fourth. No manipulation should be made except when the uterus is in a state of contraction. In the thirty years since this method was first given to the public, it has been taught and practised, to a limited extent, in all countries, and not until the last two or three years have any statistical facts been brought against it. Now, however, German authorities assert that several disadvantages result from such a procedure. It is said the uterus does not so completely empty itself; that fragments of membranes are retained, increasing the danger of septic fever; that it causes greater loss of blood; that the expulsion of the placenta is delayed by the manipulations; and that it adds to the sufferings of the woman. Statistics are adduced to support these claims. While the method has not been entirely given up, it is coming to be looked upon as a piece of "meddlesome midwifery" that had better be dispensed with.

ANTISEPTIC MIDWIFERY

is a subject that has engaged the earnest attention of obstetric practitioners for some years past. None have done more to

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place it on a scientific basis than German investigators. Bacterial pathology has already received an enthusiastic acceptance in other departments of medicine, and particularly in the domain of surgery. There was, therefore, a readiness to adopt the germ theory if only a paucity of facts could be adduced to give it substantial basis. The theory was antecedently probable. Germicidal solutions might be safely used, and clinical experience would test the correctness of the theory, whatever the microscope might say. It was nothing less than Listerism in obstetrics. And why not? Does not the genital track of the parturient woman present a continuous traumatism from fundus to vulva? And is not this traumatism an open doorway for the entrance of living throngs of bacteria, analogous in all respects to surgical wounds of like extent? Reasoning so plausible could not but lead to injections, vaginal and intra-uterine, with a view to destroying the germs. Septicæmia, cellulitis, phlebitis, metritis, and peritonitis were one in nature and cause, to be prevented by destroying the bacteria before they entered the organism. In due time the journals informed us of the brilliant results obtained by Dr. Thomas in his treatment of cases of septicæmia by germicidal solutions injected into the uterus. In a paper read by him before the Academy of Medicine of New York in December last, entitled "The Prevention and Treatment of Septicæmia," his views were elaborated at considerable length. In that paper he did not hesitate to place himself before the profession as the first and foremost representative in this country of the bacterial pathology of puerperal fever, and of intra-uterine injections in its treatment. He laid down rules to be observed in prevention of puerperal diseases. These rules, some ten in number, relate to the room the patient is to occupy during her lying-in term; the bedding; the personal clothing of patient and nurse; the disinfecting of doctor and nurse; and to vaginal injections every eight hours, to be followed by a suppository containing three to five grains of iodoform. Other matters are insisted on as appropriate for at least ten days preceding labor. These

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are prophylactic measures. How far such precautionary measures are called for, or in what proportion of cases they could be carried out if deemed necessary, are matters upon which we each have our individual opinions; but to those of us who do not see more than one or two cases in a year, at most, and whose practice is largely in families where such measures have never been witnessed nor thought of, and where a room separating the patient from the family for the time is a piece of good fortune to be thankful for — thus situated, such rules as Dr. Thomas lays down seem to us impracticable, needless, and calculated to excite alarm in the mind of the woman, if not contempt for the physician in the eyes of all present. Besides, such measures have a hospital odor about them in no way pleasant to think of. The treatment may be stated in a few words: Hypodermic injections of morphia to control nervous agitation; keep down temperature by means of a rubber coil over abdomen, through which ice-water is kept flowing, in addition to which quinine or Warburg's tincture may be given; but chief, and above all else, for control of temperature and for safety of patient, introduce into the uterus a Chamberlain tube, attach a Davidson syringe, and inject a solution of bichloride of mercury, strength of one to two thousand, and temperature of 100 degrees Fahrenheit — injections to be repeated every two, four, six, or eight hours, according to the necessities of the case. Such, briefly, is Dr. Thomas' treatment.

Now, Dr. Fordyce Barker, president of the academy, and who was in the chair when Dr. Thomas read his paper, had published a work on "Puerperal Diseases" some dozen years ago, in which he had recommended intra-uterine injections in certain cases of puerperal fever, and he was not a little nettled that Dr. Thomas should totally ignore what he had long before said upon this very point, and should place himself before the profession as the first — in this country, at least — to make use of intra-uterine injections in puerperal fever. Dr. Barker asked the privilege of replying at the February meeting, and, as might have been expected, there then occurred a battle be-

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tween kings. I will not attempt to specify all the ground covered in his reply. It is sufficient to say that Dr. Barker does not believe that all cases of puerperal fever are cases of septicæmia; he does not believe that every case of labor involves traumatisms so serious as to threaten the life of the parturient woman unless treated with antiseptics; he does not believe that micro-organisms are such a dangerous element in the normal puerperal state. He believes there are two forms of puerperal fever — that one of these is a true septicæmia, which may or may not have micro-organisms as its producing cause, and that the other has its origin in a specific poison, and is attended with a different set of symptoms; he believes that this latter is often epidemic, depending upon atmospheric conditions of which we know but little. He believes that these different diseases, differing essentially in their pathological elements, should not be treated in the same way, and that, so far as antiseptic injections into the uterus are concerned, they are only occasionally useful. For a fuller statement of his views, he refers to his book on puerperal diseases, to which he has nothing to add.

Of course Dr. Thomas had his rejoinder, which was not lacking in spirit, and the debate was participated in by other members, the general result of which was only to place before the profession the different aspects of this interesting question.

We think the views enunciated by Dr. Barker in his book are not yet to be given up for the newer and more fascinating theory of bacterial germs. The discussion brought out this one fact, which is of most practical importance — viz.: that antiseptic vaginal injections as a prophylactic measure are not now in favor among the leading members of that body — that, after trying them for a time, they have been abandoned as useless, if not harmful. There is also this other fact — which we would do well to remember in these times of meddlesome midwifery — that there is a return to the old doctrine of the innocuousness of the lochia, and that it should not be interfered with by injections or in any other way. So far as anti-

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septics in midwifery is a subject before the profession, the lesson of the year is, more trusting to nature and less of interference on the part of the physician.

Turning now, for a few moments, to gynecology, I would remark that in laparotomy the carbolic spray has, in the main, been given up everywhere. It has come to be recognized that it is a source of danger through the absorption of the acid in poisonous quantity. It is conceded, too, that the great value of Listerism was not in the spray as a germicide, as was claimed for it, but in the cleanliness which was secured in observing the directions which Dr. Lister so much insisted upon.

It is to be noted, also, that Emmet has modified his operation for repair of perineal ruptures. It has been held that the function of the perineal body was to support the uterus and to aid in keeping the pelvic tissues in place. The object of perineorrhaphy was, therefore, the restoration of this triangular body. Emmet now holds to the opinion that it is the perineal fascia, and not the perineal body, which is concerned in the support, and that any operation, to be successful, must include some portion of the posterior vaginal wall. The wished-for support cannot be gained, he tells us, unless the denuded surfaces are properly extended within the canal, so as to be posterior to the line of vaginal attachment with the external tissues — and this will always be beyond the limit of any laceration confined to the perineum. The points of attachment of the pelvic fascia being the coccyx, the pubic arch, and the tuber ischia on either side, the main object of the operation is to bring a portion of the posterior wall of the vagina at the entrance together, the posterior vaginal wall being thus kept in contact with the anterior wall. Such is Emmet's modification of his operation of perineorrhaphy. It is proper, in this connection, to state that Dr. E. C. Dudley, of Chicago, recommends that in immediate perineorrhaphy a further denudation of about three-sixteenths of an inch be made all around the torn surface. He claims to have thus secured better results than could be obtained by operating in the usual way.

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Probably the most important contribution made to gynecology in the year just past was by Dr. Munde, and published in the *American Journal of Obstetrics and Diseases of Women* for October, 1883. The article was entitled "Non-puerperal Pelvic Lymphadenitis and Lymphangitis," and, as suggested by the title, related to a diseased condition of the lymphatic glands and vessels of that cavity in the non-puerperal woman. Dr. Munde proceeds to describe, with some degree of minuteness, the anatomy of the lymphatic vessels and glands of that region, and which, he claims, have been ignored as in any way connected with ailments of the non-pregnant woman. This intricate net-work of vessels, opening on the free surface of the mucous membrane lining the uterus and bladder and on the peritoneum by means of innumerable minute orifices, converge to form larger vessels and canals, with pouch-like dilatations spreading over all the organs of the pelvis, and are finally merged in larger ducts leading to the ductus thoracicus. Distributed in the cellular tissue above the vagino-cervical junction, extending to the margin of the pelvis and between the broad ligaments, are numerous isolated glands and chains of glands. The vessels and glands thus described, the author insists, become the seat of inflammation, giving rise to continuous pain, inability to walk, dysmenorrhœa, menorrhagia, and general nervousness. Behind the cervix and above the posterior vaginal pouch may be felt tender, movable nodules of the size of a bean, besides a number of irregular, angle-worm-like masses, which are equally tender to the touch. This pathological condition is one not described in the works on gynecology. It is a condition very easily detected, and is one not amenable to treatment by any known means. I have stated the leading points in this interesting article, and have endeavored to use Dr. Munde's own language in so doing. The article should be carefully read, as it opens up a new field of peri-uterine pathology.

In concluding this brief report, I may refer to what is, in my opinion, the attitude of the great body of general practi-

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tioners toward much of the teaching of so-called "progressive" obstetricians who stand in the front rank of our profession to-day. It must be admitted that, in the enthusiasm excited through recent investigations and the great possibilities that seem on the point of realization, the function of parturition, with many, is coming to be treated as an abnormal one — as a field where inventive genius may display her resources in the correction of evils that less gifted persons fail to see. Specialists move swiftly, while general practitioners, as a body, are slow to accept the latest teachings of science when such teachings aim at improving an experience that is reasonably satisfactory. Besides this, they know, without stopping to think over the matter, that it is impossible for any but the few and favored to carry out the preventive measures laid down by eminent authorities, such as Dr. Thomas in the paper before referred to. Nor is it possible to convince them that there is any importance to be attached to so doing, except as to a few of the commonplace rules which every physician is supposed to observe on all occasions. They do not see cases of septicæmia, cellulitis, or metritis often enough to inspire them with any dread of their occurrence. It may be that when they do occur they are not treated in the most scientific way — for such treatment demands, not skill only, but appliances and more time than is commonly at the disposal of physicians in private practice. In view, therefore, of what they see with their own eyes, they naturally conclude that there is too great an ado over a purely physiological function. The reaction against ergot, expression of the placenta and vaginal injections, and other measures for a time approved and then rejected, is a virtual confession that "advances" are sometimes made in a wrong direction. The so-called "progressive" physician may be the most learned, but the fact remains that, in most cases where real difficulty is encountered, more depends upon good judgment and the skillful use of means already known and approved by the profession than upon calling to our aid the latest suggestions of science. To keep

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well informed of whatever is new in our profession is well; to attempt to utilize it to the neglect of approved remedies would be a mistake.

DISCUSSION.

Dr. McNutt said he was delighted to hear expressed the thoughts of an erudite mind, and approved of the doctrines enunciated by the author of the paper. Pregnancy and parturition are natural conditions and processes, and meddlesome midwifery is bad midwifery. Let labor have its natural course when possible. Nature has made ample provisions, in most cases, and too much interference serves to thwart her purposes or entail disease subsequently. Ergot, in the hands of the practitioner, is a sharp and dangerous weapon, and should be used with great caution. After parturition is completed, it is valuable by way of insuring more permanent contraction of the womb and preventing hemorrhage and after-pains.

Dr. Hinzie thought that the best practitioners of obstetrics left their short forceps at home, under which circumstances they would not be tempted to use them merely to save their own time, to the detriment of the patient. Cases should be left more to nature, and when she fails is time enough for the intervention of art.

Dr. Scofield.—Parturition should be a natural process; but, under the influences of modern society, nature frequently proves incompetent to complete her work, and art must step in and aid her. We have but few, if any, natural females at the present day in civilized countries. When we deal with nature's imperfections, art must be summoned to help out.

Dr. Huntsman.—I do not believe it is the correct doctrine to leave nature to itself in many instances. As results of non-interference at the opportune time, there are many still-born children. When the head remains pressing on the perineum for sixty minutes, it is time to interfere; rupture of the perineum or spasms may be the result of delay. Not only so, but convulsions may be caused in the new-born child from too

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long pressure on the head during parturition. Preserve membranes intact as long as possible; but when the head is low down, apply the short forceps to save the child.

DR. JENKINS.—I agree with Dr. Williamson's paper. I believe the obstetrician has something to do; he is not to sit around as a mere looker-on and leave nature entirely to itself. There is an excellent opportunity for the exercise of good judgment. Ergot is useful after expulsion of placenta. Forceps as aiders of delivery are not so objectionable as ergot. I used antiseptics extensively some years since, but now seldom, in obstetric practice, for, in this particular, I deem it meddlesome. In real septic conditions, of course, I resort to them.

Dr. Christy reported some cases in his practice and the modes of management he usually pursued.

DR. BROOKINGS.—I support most of the sentiments of the paper, but must dissent from the doctrines set forth in regard to ergot. I would as soon you would take away from me opium as ergot. When properly used during parturition, or near the close of the process, it has valuable properties. I have had no still-births from its use, and never expect to have. In regard to antiseptics, I would say that carbolic acid is a deadly agent, and does more harm than any other we can use. We check normal discharges by using it. Simple hot-water injections have also deleterious effects. After natural labor this washing-out process is uncalled for.

DR. WATSON.—There seems to be some difference of opinion. There is a greater opportunity for exercising good sense in obstetric practice than under many other circumstances. I always carry ergot to my cases, and think I know how to use it. I never leave a case without giving a dose of it. Would rather be without opium than ergot. It is not best to adopt new views too readily when the old are known to be reliable. Never use forceps unless indicated. For prevention of after-pains, nothing will compare with ergot.

Dr. McCluer stated that his experience accorded with that

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of Dr. Watson, and that the danger of post-partum hemorrhage demanded the use of ergot at the close of labor. He had no such trouble when using this remedy. As to the production of hour-glass contraction by this drug, as some had claimed, he was of the opinion that it was entirely a myth. He had never seen a case of hour-glass contraction during a long course of practice.

Dr. Thrall thought that in the management of child-birth there was a happy middle ground and an excellent opportunity for the exercise of judgment. As to the use of ergot at the end of labor, he did not resort to it, but frequently used the forceps. Ergot should never be used after the birth of a child, even, until it is certain that there is not a second child in the uterus. He seldom gave anything for after-pains; careful removal of the secundines was his remedy in this particular.

Dr. Von Mansfelde.—Intra-uterine injections may be used in uterine inflammations after labor. We can easily tell when to use these injections. When you have a normal lochial discharge, never use intra-uterine injections; but when the discharge is ichorous, use injections by all means.

XXV.

A CASE OF MALFORMATION OF FINGERS AND TOES.

By D. Macrae, M.D., *Council Bluffs.*

The subject is a little German-Jew boy, aged six and a half years, whom I first saw a day or two after birth. I was then consulted with a view to rectify the malformation of his hands. His father and mother are residents of this city, and are healthy and well-formed. There is no family history going to show that the condition is hereditary, nor is the child the issue of a consanguineous marriage.

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The photograph of the hands, which I have had taken, gives a good idea of their general appearance. It will be observed that the thumbs are normal on both hands, and that the metacarpal portion of the right hand is also normal. The metacarpal bones of the left hand are normal enough so far as regards position and length, but they are covered by a bag of cutaneous tissue, which takes its origin at the carpus, is loose and baggy, and is continued over the fingers. This bag includes all the fingers, as well as the metacarpal bones, like a mitten. At the finger-tips the appearance is as if the bag or mitten of skin had been puckered up and tied around with a cord. The fingers can be easily felt, loosely confined in this closed sack. They are short, seemingly not much longer than the proximal phalanges would be — indeed, as there are no joints in the fingers, they are probably only composed of one phalanx. They are provided with flexor and extensor tendons.

In the right hand the arrangement is somewhat different. While the metacarpal portion of the hand is normal, the fore and middle fingers are connected or webbed. These are composed of only two phalanges, have rudimentary nails, and are deformed and bulbous on the dorsal surface near the points. The ring and little fingers are connected, are composed of one bone, and the ring-finger terminates in a bulbous, club-shaped extremity.

It was only within the last twenty-four hours, when reëxamining the child with the view of putting the abnormality of his hands on record, that I found that his toes also were somewhat peculiarly fashioned. On the left foot the little toe is the only normal one. The large toe and the next are connected and are club-shaped at their extremities. The third and fourth toes are also closely connected. All these have rudimentary nails. On the right foot the great toe and the next are webbed half-way, and are truncated, appearing as if chopped off at the roots of the nails. The other toes on this foot are normal.

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XXVI.

OBSTRUCTIVE DYSMENORRHŒA.

By G. O. Morgridge, M.D., *Muscatine.*

In the study of dysmenorrhœa, we notice that authorities differ, to some extent, in their conceptions of what is comprehended within the scope and meaning of the term. Hodge says "It is essentially an example of nervous irritation of the uterus, manifested by pain and spasm of this organ." In another place the same author, after a lengthy consideration of the subject, says: "These confirm the opinion that dysmenorrhœa is essentially a nervous, and not an organic, disease; that the congestion, even when excessive, is not inflammatory, but the result of great nervous, not organic, irritation." Others of the older writers classed in the same category all pains experienced at the menstrual period, and with them "dysmenorrhœa" and "uterine colic" are terms used indefinitely, the real cause of the intense suffering of the patient not being indicated by the name employed. A woman may suffer during menstruation because of a displaced or inflamed ovary, and yet, according to Schroeder, not have dysmenorrhœa. "Ovulation," says the same author, "may be interfered with, hemorrhage into the peritoneum take place and be accompanied by excruciating pain; but such pain is peritoneal in its nature and origin, and cannot be termed dysmenorrhœa." Viewed from this standpoint, the pains of dysmenorrhœa cannot well be mistaken for those of any other affection. They are periodical, like labor-pains, and, while the patient suffers all the pangs of the child-birth ordeal, she is yet free from any elevation in temperature or other evidences of inflammatory trouble. The discomforts attending obstructive dysmenorrhœa are unquestionably due to contractions of the uterus. The menstrual fluid failing to obtain free exit, that organ is thrown into spasmodic contractions. The

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causes that lead to this retention are various, by far the most frequent being the occlusion of the uterine canal, caused by the organ being bent upon itself.

The question of flexions we do not now propose to consider. Anything that we could say on that subject would only be a repetition of what has been written, and what may be found on the table of every practitioner in the land. The object of this paper is to call attention to two conditions that are to be found in the flexed uterus that has never been impregnated, and give briefly the treatment which, in our hands, has been efficient in relieving the severe dysmenorrhœa that almost invariably accompanies such deformity. The first of the two conditions requires here but a passing notice. It is where flexion exists and the uterus is soft and flabby. In this class of cases restoration of the organ to its normal place, a properly adjusted pessary, and careful attention to the patient's *nutrition* will usually suffice to give relief.

In the second class of cases a different condition of things is found to exist. As in the first, the uterus is bent upon itself; but, instead of the soft, flabby condition noticed in the first instance, the organ is found hard and with but slight, if any, increase in size. In cases of long standing the uterus, at the point of flexion, becomes almost cartilaginous, the tissues having become exceedingly dense. The organ is not fixed in the pelvic cavity, and there is to be found no evidence that a metritis or perimetritis has ever existed. The pure types of this condition are always found in a uterus that has never been impregnated. In these cases the introduction of the uterine sound is attended with great difficulty, so great is the degree of flexion and stenosis. In some cases that have fallen into my hands for treatment I have been unable to pass the sound, so great was the degree of flexion at the internal os, until I had first anæsthetized the patient and brought the uterus down.

During my professional life a number of these cases have come under my care, and, until I adopted the procedure pres-

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ently to be described, they were the bane of my professional life. Most, if not all, of these cases had been under the care of other physicians, had been treated to numerous prescriptions, worn pessaries without benefit, and were ready to resort to extreme measures, if necessary, that relief might be obtained. Having noticed the results claimed by Dr. Ball, of Brooklyn, New York, in the use of expanding instruments, by which, at one operation, the uterus could be restored to its normal position in the pelvis, its canal dilated, and the cartilaginous tissue forming the stricture and occluding the uterine canal entirely broken up, I resolved to avail myself of the benefits of his experience. I was also induced to adopt this procedure by the results obtained by Dr. Ady, then of West Liberty. Dr. Ady at once secured the necessary instruments from George Tiemann & Co., and was probably the first in Iowa to make the operation as described by Dr. Ball. He has, since that date, made the operation fourteen times, with complete relief in twelve cases, the remaining two cases being greatly benefited. Of the fourteen cases operated on by Dr. Ady, two were married ladies and sterile. After the operation, one of these became pregnant within the year and was delivered of a healthy child at term. Another of the number afterward married and became a mother.

Up to the present time I have made the operation fifteen times. I have also been present six times and witnessed its performance by others. Of my own cases ten obtained complete relief. Four were cases of long standing, with ovarian complications, and markedly hysterical. These were only partially relieved. One died, eight months after operation, of pelvic cellulitis. Of the successful cases, one had, at the time of operation, been married six years. Twelve months after the operation she gave birth to a child at full term. Three others have since been married and borne children.

Eight months after the operation one died, as before stated, of pelvic cellulitis. This patient had for many years been a great sufferer from obstructive dysmenorrhœa. She was hys-

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terical, and for a long time had been addicted to the use of opium. The operation was made October 4th, 1882. She passed the first six days without pain. The stem was removed, and at the proper time she menstruated without pain. Ten days after she was able to be up the entire day. She then became very constipated, and it was with great difficulty that an action of the bowels was obtained. After a somewhat protracted illness, she so far recovered as to be able to go out driving. During the latter part of winter she made a short trip by rail. Again the constipation gave trouble, pelvic cellulitis supervened, and, eight months after the operation (June 5th, 1883), she died.

Permit me now to outline one case and in connection therewith describe the operation. Miss L., aged twenty-six years, a teacher, had suffered with obstructive dysmenorrhœa since the establishment of the menstrual function. She applied to me during the summer of 1879. For two years preceding, her pains had been on the increase. She had been forced to abandon her work in the school-room, and, indeed, was unfitted for any work. She suffered much of the time with dizziness, and a premonition of her approaching menstruation was impairment of vision. She was reduced in flesh, and for two or three days preceding the flow suffered all the pangs attending child-birth. Examination revealed a retroflexed and hardened uterus. Although I made persistent effort, I failed to pass the flexible silver sound. There was no redness, excoriation, nor congestion about the os, and nothing to indicate that any of the pelvic organs had ever been the seat of inflammatory action. An operation with expanding instruments was advised, and accordingly (in May, 1879,) the patient was etherized, the uterus brought down with strong vulsellum forceps, and an Atlee dilator first introduced. With this but little could be accomplished, so dense were the uterine tissues. The instrument devised by Dr. Ady was then introduced and the uterus thoroughly dilated. A stem one-third of an inch in diameter, and long enough to pass above the internal os, was

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then introduced. This stem was of sufficient length to extend without the vulva, where it was secured by tape fastenings to a belt about the waist. The stem was permitted to remain in place six days, when it was removed. During all this time the patient remained quietly in bed. The next day after the removal of the instrument she was permitted to occupy a chair, and at the expiration of another week was discharged.

This patient suffered but little discomfort after the operation; but this part of the history does not apply to all cases. Some have required the frequent administration of morphia to prevent pain. This patient said to me, one year after treatment, "I am free from dizziness, my eyes do not trouble me any more, I do not have any pain at my menstrual period, and I have gained, since the operation, twenty pounds in weight."

In my judgment, the operation has these advantages: *First*, safety. Of the thirty-six cases here reported, no deaths have resulted. *Second*, the time required for treatment is short, ten days in the house, in ordinary cases, being sufficient. *Third*, it gives prompt relief to a class of cases that are not amenable to treatment by other methods. I am aware that many excellent gynecologists look upon this method of treatment with distrust. So eminent an authority as T. Gailard Thomas, in his work on diseases of women, says: "Another method which has been adopted with advantage, in many cases, consists in the dilatation of the constriction by means of expanding instruments. The action of these instruments is too injurious to the tissues to be safe, and they are by no means as promising of good results as the use of cutting instruments."

DISCUSSION.

Dr. Scofield questioned the author's claim that his mode of treatment was new.

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XXVII.

UTERINE FIBROID TUMORS, AND THE EFFECT THEY MAY HAVE UPON NORMAL PREGNANCY AND PARTURITION: TWO CASES.

By L. C. Swift, M. D., *Des Moines.*

It is not my intention to attempt to present anything especially new or startling in reference to my subject, but simply to relate the histories of two cases, and give the observations made at the autopsy of one, with the hope that some of the points, as compared, may be of as much interest to you as they have been to me.

First I will give the history of a case of multiple fibroid tumor of the uterus, the circumstances which occurred during the last few days of pregnancy and during confinement, with a full history after labor, up to the time of death, and a complete account of the autopsy. I will then give the history of a case — which has occurred in my practice recently — during the term of pregnancy, confinement, and the puerperal period, up to the date of convalescence.

The first case was that of M. C., a Scotch woman, aged thirty-seven years, a domestic by occupation, and pregnant for the first time. She menstruated February 22d and 23d, 1879. She felt quickening about August 1st; from this reckoning, her term of gestation was 266 days. She never had illness more severe than chills and fever, but she suffered from this for three years previous to her confinement. October 22d she was feeling perfectly well.

Before labor the urine was examined, and found to be normal in every particular. Palpation before delivery showed an irregular outline of the uterine body, there being a round, hard tumor felt just below the umbilicus. The other irregularities in the uterine outline could have been caused

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by the presence of twins *in utero*, there being on the left side and behind the uterus two prominences — the upper one in the left renal region feeling like the knees of a fœtus, the other, situated about six inches lower, felt like the shoulders; but twin pregnancy was precluded by my finding but one fœtal heart. Labor began November 14th, and a digital examination showed the vertex to be presenting itself in the L. O. A. position. The uterine contractions were normal, but the head advanced very slowly. The forceps were applied when the head was about one and a half inches from the vulvar orifice, as no progress was made after it had reached this point. Just before the head crowned, the forceps were removed, and delivery was effected by the aid of the fingers in the rectum, and expression applied at the fundus uteri. The labor lasted twenty-seven hours and fifty-nine minutes. The perineum was very slightly ruptured — too little to necessitate the use of sutures. The umbilical cord was but fourteen inches long. The child weighed 7 pounds 2 ounces; the head measured $5\frac{3}{8}$ inches occipito-mental, $4\frac{3}{4}$ inches sub-occipito-bregmatic, $3\frac{7}{8}$ inches bi-parietal, and 14 inches in circumference. No hemorrhage followed delivery, other than the normal amount, and the uterus contracted firmly down to the size of an adult head after the expulsion of the amnion and the placenta, both of which were entire and normal. After firm contraction, the uterus was found to still have the irregular outline and to be very hard—unusually so. The tumor below the umbilicus followed the uterine body down, and remained, the umbilicus being drawn inward and downward after it. After the birth of the child and the expulsion of the secundines, no sounds of a fœtal heart could be heard. An examination showed the uterine cavity to be apparently filled by a mass which had a rough, papulous feeling—the surface tissue resembling, to the touch, the maternal surface of a placenta. No effort was made toward the removal of this mass. During the remainder of the night the patient vomited repeatedly, and complained of pain over the uterus, and, a little later, in

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the hypogastric region. November 16th, forenoon, the uterine and hypogastric pains and tenderness were very marked. The urine, drawn through a catheter, was acid — specific gravity, 1.030 — and contained albumen, mucus, uric acid, urates, oxalate of lime, and columnar epithelium — no sugar. Twelve hours after confinement the urine was acid and albuminous — specific gravity, 1.022—and contained fat, blood, mucus, epithelium from the bladder and ureter; also renal tube casts — all granular. November 17th, forenoon, the patient was suffering from œdema of pharynx, epiglottis, and larynx. Urine acid; specific gravity, 1.022; no albumen; contained urates and phosphates, bladder and pelvic renal epithelium, epithelium from the ureter, and bacteria. November 18th, forenoon, the œdema had entirely disappeared. Uterine and hypogastric pain much less severe. Urine alkaline, dark yellow in color; specific gravity, 1.030; slightly albuminous; contained urates, phosphates, blood, fat, and pelvic, renal, bladder, and ureteral epithelium — no sugar. During the forenoon of the 19th the patient had no pain in the hypogastric or supra-pubic regions, and there was no œdema of any part. Urine brownish-red; specific gravity, 1.025; slightly albuminous; contained abundant deposits of urates and phosphates, and a slight quantity of blood and pelvic, renal, bladder, and ureteral epithelium.

The patient's condition remained as above described, with the exception of a slow loss of strength, until 10 A. M., November 23d, when she died. The lochia throughout her sickness showed nothing abnormal, when examined microscopically, as it was daily up to the time of death; neither did it present unusual features in appearance or character. Her temperature rose gradually until the day of death, when it had reached 104 degrees Fahrenheit, but was one-half to one degree higher in the evening. Her pulse did not rise above 126, and was this on the evening of her death. She suffered more or less from insomnia, but one-eighth-grain doses of morphia removed this trouble. The secretion of milk was abundant up to the evening preceding death. Her appetite remained fair,

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and she ate a good breakfast the morning before she died — as good as she had at any time after her confinement.

The autopsy was made twenty-four hours after death, and showed the case to be one of intramural pedunculated and sub-peritoneal fibroids of the uterus, complicated by peritonitis, acute phlebitis, ureteritis, and cystitis.

Body: Rigor mortis present. Engorgement and blood decomposition in the superficial veins of neck and upper portion of the thoracic region. Abdomen distended, dullness extending up to a point about one inch below the umbilicus; tympanitic above this.

Thorax: Adhesions at apex of left lung; pleural cavities otherwise normal. Lungs — both upper lobes emphysematous; lower lobes, hypostatic congestion. Heart — pericardium normal; walls brownish-yellow, flabby, having a granular appearance; blood-staining of endocardium and vessels.

Abdominal cavity: Fundus uteri extended upward to about the level of the umbilicus and the body filled the entire pelvic basin. Attached to the left superior cornua, about one inch to the right of the Fallopian tube, was a flattened, ovoid tumor, 4½ inches long, 3¾ inches in its shortest diameter, and 2½ inches thick, attached, by a pedicle about one inch long and one-half inch thick, to the above point in the uterine body; the tumor was also attached very firmly to the abdominal parietes, a little to the left of, and on a line with, the umbilicus, for a space of about three inches; also attached to the greater omentum over and by its upper and left borders; also attached to the transverse colon by four fibrous cords, each about four inches long. The posterior border of the tumor was attached to the mesentery of the ileum over a space of about four inches, and five feet from the ileo-cæcal valve. Surrounding this tumor and the uterus and a few coils of the intestine was a moderate amount of fibro-purulent exudation. Peritonitis most marked in the lower half of the abdominal cavity.

The uterus was globular in form, and filled the pelvic basin tightly.

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The sigmoid flexure of the colon was pressed toward the right side of the pelvic basin. Opposite the brim of the pelvis the rectum was empty and contracted, apparently from the pressure exerted by the uterus; but below and above this point it was filled with pultaceous fæces.

The uterus, with the tumor, after removal, weighed 6 pounds and 14 ounces, and measured 7½ inches in all its diameter. Externally, besides the pedunculated fibroid already mentioned, was a sub-peritoneal fibroid, situated just below the left round ligament at its point of origin; a second one on the left side, behind the uterine extremity of the Fallopian tube; a third, one-half inch in diameter, on the posterior wall of the uterus — all sub-peritoneal. The whole anterior uterine wall was dense and elastic to the feeling, and globular in shape. Passing a probe through the os uteri, it met a firm body, behind which the probe passed to the right and then upward. The uterus was opened by an incision through the posterior wall, when the whole anterior and left lateral uterine wall was found to be occupied by an immense intramural fibroid, the inner wall or capsule of which had ruptured and been broken away, leaving exposed the surface of the tumor to a diameter of about four inches. This exposed portion was greenish-yellow in color, and covered with a slimy material. This tumor, when cut into, presented the usual appearance of uterine fibroid growths. The uterine cavity was five inches in diameter laterally, and posterior to the tumor, from above downward, measured six inches. The external uterine os and the lower border of the tumor were on a line. The placental attachment was on the posterior wall, to the left of the fundus, and covered an area of five inches square. The uterine walls were one-half inch thick on the average. The endo-metrium showed nothing abnormal other than that mentioned. The cervix uteri showed a very slight bilateral laceration, involving the vaginal mucous membrane on the left side. The uterine appendages were normal. The corpus luteum of pregnancy was found in the external outer border on the left

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ovary; the convoluted walls thin, not yellow. Central cavity converted into a cyst; it was one-half inch long and one-eighth inch wide, including the cavity.

Pelvic inlet: Antero-posterior diameter, 5¼ inches; transverse diameter, 4½ inches; oblique diameter, 5½ inches.

Liver: Weight, 6 pounds 1 ounce; enlarged; reddish-black in color; post-mortem emphysema beneath the capsule, and post-mortem decomposition far advanced.

Kidneys: Enlarged; capsule non-adherent; surface smooth; congested at points, other portions yellowish in color. On section, relations normal. Cortical substance reddish-yellow; pyramids reddish-black in color.

Right pelvis: Infundibula and calyces moderately dilated, thickened, and thickly dotted with sub-membranous hemorrhages. At a few points, small patches of diphtheritic exudation were shown. Right ureter, at or above the pelvic brim, considerably dilated, and the seat of an intense ureteritis.

Bladder: Mucous membrane congested and the seat of an acute cystitis, with here and there scattered patches of diphtheritic exudation.

Second Case.— M. T., a colored woman, domestic, aged twenty-four, primipara. I was called to see this woman for the first time in July, 1882, and found her suffering from intermittent pains in the region of the uterus and in the back, accompanied by headache. She stated that it was her menstrual period, but that she was not flowing; that she had not menstruated since May, two months previous, and that she had been suffering from attacks of pain similar to this every other afternoon for about a week, becoming worn during the night, this feeling lasting until morning. She had had no chills; her pulse was full and slightly irregular, beating 98 per minute; the temperature was 100.2 degrees Fahrenheit. I prescribed quinia and morphia, and the next morning found her attending to her duties as a cook, not suffering pain, but worried because her menstrual flow had not come on. I was not surprised at this fact, because I knew she was living with a colored man who worked in the house.

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I was called to attend her at the menstrual periods in August and September for attacks similar to that mentioned. At this last time I heard the sounds of a fœtal heart and told her that she was pregnant. This she denied, but did not complain at the menstrual periods which followed, nor at other times, until early in January, 1883, when I found her suffering from parturient pains. She told me that there had been a continuous, but very slight, watery, vaginal discharge for the two weeks previous to this visit. A vaginal examination showed the os uteri to be sufficiently dilated to admit the forefinger, but the cervical canal was not dilated at all. The next morning the pains had ceased entirely, and the discharge had not increased or changed in character. At this time I could distinctly feel a prominence on the anterior surface of the upper portion of the uterine body. It was round, smooth, and hard, and evidently a part of the uterine body, or closely attached to it, as it was not at all movable. I left, instructing the friends to call me, but was not called again until the night of March 13th, when I found the patient suffering the true pains of labor, which she told me commenced about noon of that day. The uterine contractions were regular and powerful, but the os dilated very slowly, so that not until the morning of the 15th (thirty-eight hours after beginning) was it fully dilated; then it measured about three inches in diameter. During the uterine contractions at about four o'clock that morning the contractions ceased entirely, and quite suddenly, and did not recur until the afternoon of the same day; then they became stronger and more frequent. At eleven o'clock in the evening (fifty-nine hours after commencement) they were almost continuous, and very powerful, but the head did not become engaged in the superior strait. While watching the case with considerable interest, and deferring interference, from this motive, until the condition of the patient demanded it, I noticed that the uterine contractions seemed to begin at the cervix and extend upward to the fundus, stopping when this point was reached, relaxation coming on immediately. At

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the height of each contraction the tumor or prominence at the fundus seemed to be much more marked, but did not change its position relative to the uterus. At six o'clock on the morning of the 16th (sixty-six hours after the pains began) I called assistance, administered chloroform, and delivered a child with the forceps. After the delivery of the child there was a marked hemorrhage, the uterus refusing to contract after the administration of ergot hypodermically. Finally we succeeded in forcing contraction sufficiently to expel the placenta by using cold, pressure, and ergot. After this there was little or no loss of blood. The presentation was L. O. A., and the pelvis was of normal size, and, I think, unusually roomy. During the entire period of labor the uterine contractions seemed to me to be stronger than usual, but invariably stopped at the fundus, commencing at the cervix.

During the manipulation resorted to in order to expel the placenta, the rounded tumor did not seem to move in its relation to the uterine body, but was very much larger than when I noticed it first, in January, 1883. Convalescence was normal, except in being protracted. I kept the patient in bed until April 4th — twenty days — and then allowed her to sit up for a short time each day. On the 28th of April she was attending to her household duties, and did not feel discomfort of any kind. May 10th she was still attending to her household duties, and, in addition to these, performing the hard labor of washing two days of each week. She has had no trouble from either the secretion of milk or from the uterus, and feels perfectly well. There is a hard tumor to be felt now, just above the pubic symphysis and in the pelvic basin, about the size of a large orange, moving freely when the uterus is moved, but not without it. The uterine cavity is three and three-fourths inches deep, and with a probe I can map out a rounded, hard mass occupying the upper part of the uterine cavity, and evidently embedded in the anterior wall, behind which the probe passes up to the fundus. During her convalescence I examined microscopically both the

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lochial discharge and the urine almost daily, for the twenty days she was confined to her bed, and failed to find anything abnormal in either.

In comparing the points in these cases, there are but few that agree, these being the situation of the larger growth — intramural in both — which probably caused the retardation in progress of labor; the character of the uterine action during the two labors; and the entire absence of any characteristics in the lochia or urine denoting the presence of abnormal growths in the substance of the uterine body. In the case that resulted fatally, there were no symptoms indicating septicæmia, neither were there in the second, although in both there were lacerations of the cervix uteri and perineum — both slight in the first case, but that of the perineum quite extreme in the second. Both were in good health before delivery; yet in the first case, although prompt interference shortened labor and rendered it less exhausting than in the second, and the hygienic surroundings of the first were of the best, while those of the second were all bad, the first patient died and the second recovered.

XXVIII.

INJURIES OF THE PERINEUM.

By J. Williamson, M.D., *Ottumwa.*

This is a subject on which a great deal has been said and written of late years, and much, it would seem, remains to be said before certain questions will be finally settled. The observations that I have to offer will be limited to a few matters of interest to the general practitioner.

THE FREQUENCY OF PERINEAL INJURIES

is a matter that is now insisted upon by all writers on gynecology, and we may expect that it will soon be the common practice to examine every puerperal woman with special refer-

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ence to this accident before dismissing her. If it were not corroborated by the testimony of clinical observers, we should certainly be inclined to doubt the statement that more than one-half of those who pass through the ordeal of child-bearing suffer a lesion more or less grave in some one structure of the genital organs. Such a statement is antecedently so improbable and painful as to lead us to exclaim, "Some *enemy* hath done this!" for how can we believe that an all-wise Creator has constituted womankind in a way that carries danger and defeat to so large a proportion in the exercise of this the highest of all functions? How far such accidents may be due to a lengthy series of causes acting through customs and habits of successive generations, resulting in a modification of the female organism, is a question we are not concerned with at this time. Truly the reproductive process, from first to last, has a somewhat tragic look. Lesions occur at every step. The ovum escapes from the Graafian follicle by a lesion of structure; the hymen is ruptured in the sexual act; the cervix ordinarily suffers a lesion in the passage of the child's head; the fourchette, and often the perineum, are lacerated in the last throes of labor; the disruption of the placenta from its uterine attachment leaves a traumatism behind. The mucous membrane and sub-mucous tissues of the vagina are contused, and the epithelial layer is exfoliated. This bloody list is included in the normal process of reproduction, while each of the lesions is an open door for the ingress of septic material whose fermentation is viewed with alarm by the intelligent accoucheur. To this list, which every mother *must* endure, may be added another of contingent accidents.

A recent writer, of large experience, states that lacerations of the perineum occur in fifteen per cent of confinements in general, in thirty-five per cent of primiparæ, and in fifty-three per cent of primiparæ over thirty years of age; and yet it is no uncommon thing to hear practitioners of considerable local fame declare that no injury to the perineum or cervix has ever occurred in their practice. Now how is this? They are honest-

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minded, and would not knowingly deceive themselves or others. We must attribute it to carelessness in not having made a proper examination. They never think it necessary to make any examination a month or two after labor, at which time an injury is more easily detected. To the experienced and self-possessed accoucheur a rupture is known to have taken place at the time of its occurrence, by the sense of touch or hearing, or both. Does it escape attention because the anxiety of the physician becomes too great for the due exercise of his senses? As soon as the expulsive forces have driven the head through the vulva, he feels that there will be no further trouble, and there ensues a mental rebound, anxiety is relaxed, the strain has been suddenly taken off, and physician and friends join in expressions of congratulation at the supposed safe delivery. For hours her delivery had been the one absorbing thought, and now it is accomplished. A slow convalescence and imperfect recovery are attributed to the exhaustion of labor or of lactation, for which time and tonics are prescribed. But time and tonics, so far from bringing relief, are sure to be followed by a set of secondary troubles which, sooner or later, compel her to apply for aid. She presents herself before the doctor and tells the old, old story of her sufferings: She has not been well since her confinement — worse now than she was six months ago; there is a constant pain in her back, and feeling of bearing down whenever she is on her feet; her monthly flows are excessive, uncertain as to time — there is a colorless discharge at all times; the bowels move only when she takes physic; the bladder is irritable, and urination frequent and painful; she is troubled with nervousness, something she never knew anything about before; she is cross to the children, and worries continually over her domestic affairs. If the laceration should happen to be complete, the sphincter ani torn through, still other symptoms are present, worse than any of which she has spoken; but these she speaks of last, or not at all. The doctor deems an examination necessary. She takes the dorsal decubitis, a cylinder or bivalve speculum is

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introduced through a slit in the cover, and the parts duly inspected. Digital examination had disclosed the uterus to be large, out of place, retroverted, and pressing upon the rectum. The cervix is inflamed, and seen to be pouring out a quantity of tenacious mucus. The diagnosis is clear in his mind: she is troubled with enlarged womb, prolapsus, and inflammation of the cervix. The examination is brought to a close and treatment instituted for a relief of the conditions. Of course there is little or no gain, but I am not now concerned with the treatment. Why has the examination resulted in a failure? You say again that there was inexcusable carelessness. Yes, but what led to it, and why did he so easily and naturally err? Was it not his abominable speculum? No such blundering is possible where a Sims speculum is used: it necessitates *some* notice of the state of the perineum.

I have given this hurried description, which is no imaginary one, but has its counterpart in every community, that I might the more effectually emphasize the importance of the habitual use of the Sims speculum. I do not forget that eminent gynecologists sometimes use cylinder and valvular specula, but they are never without a Sims, which they use whenever a first or any important examination is being made. It is indispensable, too, for other purposes. I do not see how a tampon can be properly applied without it. And yet how few general practitioners possess one. The chief reason for not using it more generally is doubtless on account of the necessity of having an assistant every time it is employed. But it is not essential that the assistant should be a trained one, and gynecological examinations should, whenever possible, be made in the presence of a friend of the woman. Convinced, as I am, that the Sims speculum is essential to good, thorough, honest gynecological work, I may be pardoned for expressing the opinion that no better service could be rendered to woman to-day than to abolish totally cylinder and valvular specula. They are bad for the doctor, as well as for the woman. His reputation is made to suffer a lesion more extensive than the

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one he overlooked — and no trained eye is needed to see it. Without any pretense to a large experience, or to any special qualifications in this branch of medical art, I may be permitted to say that it has been my lot to examine no inconsiderable number of women suffering from lacerations of the perineum who had already passed through the hands of one or more respectable practitioners, who had overlooked the true cause of all their suffering. It is needless to say that if the injury is not detected at the time of its happening, the immediate operation is not made, and the secondary effects just enumerated follow — all of which is traceable, in my opinion, to the type of speculum in common use.

ETIOLOGY.

The causes of perineal lacerations are naturally divided into those which relate to the mother on the one hand, and those which relate to the child on the other. Perhaps we ought to add a third, and say those which relate to the *accoucheur*, for we must admit the danger of unskillful or ill-judged interference on his part. Of the first, it may be said that a part is to be referred to antecedent conditions, such as pelvic deformities, tumors, contractions resulting from old inflammations, or a semi-pathological fragility of tissues, rendering them easily torn; a preternatural narrowness of the perineum, or, conversely, too great width of pelvic diameters, may allow too rapid a passage of the head, and so lead to a rupture; deformities of the pelvis which allow the head to advance too straight or force it backward; and such narrowings as cause great expulsive action, so that when the head passes them it rapidly cuts through the perineum. These are the chief causes of rupture on the part of the mother. On the part of the child, we have malpositions, or a head so large as to be out of proportion to the diameters of the track, or a head that does not yield, on account of the advanced ossification. The shoulders of a large child may cause rupture if not carefully managed. On the part of the accoucheur, we may safely say

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that the ill-timed use of ergot is a cause of laceration of both cervix and perineum. I think I do not err in saying that the use of ergot is an evil of great magnitude, and the indications for its use are not, as a rule, carefully heeded. You will bear witness that the cases of rupture that you have seen reported in the journals, whether of uterus or perineum, were, almost without exception, cases in which ergot had been administered. Then the forceps, if not skillfully handled, must stand charged with causing ruptures. There is often undue haste, or traction is not made in the direction of the axis of the passage, or the forceps are not removed as the head emerges through the vulva; or the accoucheur may cause a rupture if he be over-meddlesome with a view to encourage pains. So much for the accoucheur as related to perineal lacerations.

PROPHYLAXIS.

It is admitted on all hands that in very many cases ruptures cannot be avoided. It is not, therefore, to the discredit of the physician to acknowledge that he has had his share of them. I would not like to say that none had ever occurred in my practice, lest some one present might think my senses or my veracity greatly benumbed. But that some are unavoidable affords no reason for abating our vigilance or relaxing our efforts in the way of prevention. No one can entertain a doubt that in many instances where the danger is imminent, if the situation is rightly apprehended and the right maneuver at the proper moment instituted, the danger may be averted. And this maneuver will differ in different cases. In one it will be to make pressure on the head to prevent its too rapid passage; in another it will be to diminish the expulsive forces by placing the woman in the lateral decubitus or administering an anæsthetic; in a third it will be to weary the perineal muscles into relaxing by firm traction, during the pain, in the direction of the coccyx; in a fourth it will be to remove the forceps before the head dilates the vulva; in a fifth it may be to correct malpositions. Parvin says that in the management

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of primiparæ it is often of the utmost importance to so direct pressure upon the head as to carry it away from the median line, so that if a laceration must occur, it will be in the lateral portion of the vulva, thus saving the perineal body and sphincter ani. Episiotomy has been practiced with a view to the same result; but properly directed pressure upon the occiput by means of the thumb and fingers, so as to relieve the central line, is, according to Parvin, the thing to be ever borne in mind. Another manipulation, recommended by Goodell — although not, I believe, original with him — is to introduce two fingers into the rectum, the woman being on her back and the arm between her thighs, with the thumb on the anterior commissure, so a backward pressure can be exerted when necessary. The fingers are first on the forehead, then the upper jaw, then the lower jaw, till the head is lifted over the perineum. One great advantage is that the head may be pushed through during a pause between pains, or the soft parts may at least be stretched. The procedure is said to be of great use in forceps operations, allowing of the removal of the forceps at the last moment.

TREATMENT.

Lacerations of slight degree will generally heal, and are followed by no evil consequences, but not always. The cicatricial tissue becomes the seat of reflex pains and functional disturbances, demanding surgical intervention. It is a prevalent belief that any degree of laceration short of the division of the sphincter ani muscle will make satisfactory recovery if the knees be tied together and vaginal injections faithfully used. It is now pretty well understood that this is a mistake — that, while there may be union, it is not one that affords adequate support, and after a time is followed by prolapse of the vaginal walls, a settling downward of the uterus, with retroversion. In this condition the return circulation is necessarily impeded, passive congestion ensues, the process of involution is arrested, and a train of symptoms is set up showing

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very clearly that the laceration has healed to no purpose — that the woman is very little better off than if no union had taken place. It may be affirmed that lacerations through the perineal body do not heal, by any sort of hygienic or therapeutic management, in a way to prevent secondary troubles, and frequently there is no repair beyond the cicatrization of the torn surfaces. We turn, then, to surgery for relief in this class of cases, and, happily, it is no uncertain resort.

The first question that confronts the physician is, Shall he make the immediate operation, or wait until the woman has recovered from the puerperal state and the injured tissues have returned to something like their normal condition? The weight of opinion is altogether in favor of closing the wound at once — that is, any time within twelve or eighteen hours. The safety and simplicity of the operation is an argument for the immediate operation. It is within the reach of any one, and the means may be found in every house. Kolbe, an instrument maker of Philadelphia, has endeavored to meet the wants of the physician in this respect, and has got up a neat little case, which may be carried in the vest pocket. It contains tubular needles of different lengths and curves, a handle for the needles, and ligatures. This very attractive little case has been extensively sold through the west by his traveling agents. Thomas, however, says of tubular needles in general, that they are at once the most ingenious and worthless appliances that can be employed. I tried Kolbe's long needle on one occasion, and found it to bend where it is thinned for the insertion of the ligature. But if nothing better is at hand, a darning-needle, and a horse-hair for ligature, will do very well.

The secondary operation is so fully described in all late works on gynecology, that I will only say a few words on the subject. For denuding the surfaces, the books recommend the scissors and scalpel. Many of you, no doubt, have seen a brochure on perineorrhaphy, by Edward W. Jenks, of Chicago, in which he mentions a knife, the invention of Dr. Albert H.

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Smith, of Philadelphia. I had one made in Ottumwa — not by any means a perfect one, but nothing could work more satisfactorily, and I do not think any one, after trying this knife, will ever use the scissors or scalpel for denuding. The blade is small, dart-shaped, with double cutting edges, not more than half or five-eighths of an inch wide at its widest part, and fitted to a light handle. It is readily inserted beneath the mucous membrane, and may be rapidly worked forward and laterally to the boundary line without a drop of blood appearing on the surface. The portion of mucous membrane thus lifted has a bluish appearance, which pictures to the eye the progress of the operation. The mucous membrane once lifted, its edges are cut with scissors and removed.

Concerning the operation for lacerated perineum, Thomas has this to say (see fifth edition, where he is speaking of the operation for partial laceration): "It is one in which the merest tyro should succeed, while that for complete rupture is one of the most delicate and uncertain operations in gynecology — one in which the most skillful may fail." It strikes me that such language exaggerates the difficulties of the latter and minimizes those of the first. Something more than a minimum of judgment and skill is necessary for the successful performance of the operation for partial laceration, or we would not have so many partial successes, nor so many improvements or modifications of the operation brought before the profession from time to time. What he says of the operation for complete laceration is surely calculated to deter many from undertaking an operation in which they would succeed and relieve a vast amount of suffering. A full comprehension of the object to be attained, with a careful study of the different steps of the operation and their deliberate execution, ought to take this from the list of operations reserved for the specialist and place it in the hands of the general practitioner.

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XXIX.

TREATMENT OF THE UMBILICUS IN THE NEW-BORN—WHY SHOULD WE USE THE BELLY-BAND ON THE INFANT?

By E. H. King, M.D., *West Liberty.*

The infant, after being taken in charge by the nurse, often receives but little further notice from the general practitioner, save a few inquiries at his subsequent visits, if he is in the habit of making such. Yet there are numerous points of interest about this bit of helpless humanity which should receive the careful consideration of every obstetrician, not the least among which is the treatment of the umbilicus.

Upon the establishment of respiration the function of the placenta is ended; henceforth it is a useless appendage, to be cast off forever. In the inferior animals the cord is torn from the body, at variable distances, by the struggles of the offspring, or is bitten, it is said, by the mother. Various customs exist among the different peoples of the earth regarding the management of the cord, but all have the same objects in view, viz., to be freed of the no longer needed placenta and prevent hemorrhage from the remaining stump.

It would be supposed that primitive people would naturally follow nature's method of treating the cord in childbirth, and it would be interesting to know how they came to depart from her plain teaching, and why, the more civilized they become, the further the departure. As a rule, the Indians do not sever the cord until the placenta is expelled. This also prevails in the Sandwich Islands, in Old Calabar, among the natives of Syria and the Russians of Astrakhan. The Flatheads, Kootenais, Crows, and Creeks, however, tie and cut as soon as the child is expelled. Among the Kiowas, Comanches, and Wichetas the cord is stripped, that the blood may be forced back toward the placenta before it is tied. The Wakamba, in

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Africa, tie the cord some two or three inches from the abdomen; the Mexicans, about three inches. The Japanese tie close to the body, and the cord is carefully preserved and laid aside with family archives until the child arrives at adult age, when he constantly carries it about, and it is finally buried with him. The Comanches leave the stump a foot long. Among the Waswahilli of Africa the stump is left very long, and it slowly dries, the navel in later years being often found the size of a fist. The Loango cut it short and dry rapidly, the process being hastened by taking the child to a fire and pressing the stump with the warmed fingers of the assistant. The Wakamba cut the cord with ordinary knives. The Loango will use nothing but the sharp edge of the stem of a palm-leaf. The Papagos of Brazil use the sharp fragment of a vessel or a shell. In New Caledonia and other oceanic islands it is cut with a shell or splint of bamboo. The Hoopas, Klamaths, and other of the Indian tribes, chew it off.*

The necessity of tying the cord does not always exist, and it is said that many of the savage and barbarous tribes do not practice it; and where the stump is left of considerable length, and where it is crushed, chewed, torn, or cut with some dull instrument, the ligature would not be necessary. From time to time attempts have been made by various modern obstetricians to do without the ligature. Some eighteen years ago Dr. Kellar† tried the experiment of not tying the cord, in the lying-in wards of the Cincinnati Hospital, by taking fifteen cases and comparing them with the like number treated in the usual manner. His observations were that those treated without tying were less troublesome and did better than those on whom the cord had been tied. The cord was cut with a pair of dull scissors, which hacked or nibbled its way through—virtually a crushing process. Prof. A. F. A. King‡ also made

* Engelmann.
† Byford, Theoretical and Practical Obstetrics.
‡ Medical and Surgical Reporter, 1867.

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extended experiments about the same time. In 1873 Dr. W. L. Richardson, visiting physician to the Boston lying-in hospital, tried the experiment of not tying up upon one hundred infants, and had no hemorrhage result. In these experiments the cord was not cut for half an hour, the placenta being placed in a basin beside the child.* In the Woman's Hospital of Philadelphia this plan has been followed for several years. The cord is not cut for some time, the placenta being put into a basin beside the child in its crib, and left until the physician is ready to attend to it. A few cases of hemorrhage have occurred, necessitating the use of the ligature. Dr. W. H. Bolling, Professor of Obstetrics in the Hospital Medical College, Louisville, Kentucky, writes me: "I do not ligate the cord, and I do not find it necessary to do so. I cut the cord when the child is three-fourths of an hour old, at about one and one-half inches from the abdomen."

Whether the necessity for tying exists or not, it is the almost universal custom, and in general practice should be used as a precautionary measure, for, even with it, hemorrhage will occasionally occur, but rarely of much consequence. A few drams of blood will soil a large amount of white clothing, cause consternation in the family, and generally prove more annoying to the doctor, by a hasty summons, than dangerous to the child.

There is an important point in regard to the time of tying the cord. Unless some emergency occurs, respiration should be fully established before tying. There is generally no need of haste. Keeping the child well covered to avoid chilling, we should bide our time. So long as the cord pulsates it should not be tied, especially if respiration be delayed or imperfect. Ribemont has shown that tardy ligation benefits the child by increasing the quantity of blood which is required for the establishment of the pulmonary circulation. Prof.

* These experiments were reported at the time to the Boston Obstetric Society, but I believe were never published.

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Lusk, of New York, says: "In children born pale and anæmic, and suffering from syncope, late tying furnishes an invaluable means of restoring the equilibrium of the fœtal circulation."*

The kind of ligature used is of more practical importance than is generally conceded. When the cord is large, and its gelatinous contents abundant and firm, more than ordinary care must be taken in tying, or the vessels will not be occluded. As the function of these vessels has ceased, there is, perhaps, an inherent tendency in them to close; hence, imperfect tying or no tying is generally sufficient. But occasionally, as the cord shrinks, the ligature becomes loose and secondary hemorrhage occurs. Different materials have been proposed and used for ligatures — tape, threads of linen, cotton, and silk, catgut, and the elastic or rubber. The latter has been the subject of much experimentation, and undoubtedly is superior to all other substances proposed.

Dr. P. Budin,† of Paris, finding that ordinary ligation of large cords, owing to the presence of Wharton's gelatine, would not occlude the vessels, but upon the shrinkage of the cord the ligature became loose, made experiments to test the relative efficiency of thread and the elastic (*caoutchouc*) ligature by passing a probe and by injecting the vessels with water. He found that after tying with a thread the probe could be passed through it the next day, but not through the elastic ligature. So, also, water could be injected past a ligation with thread, even though tied with great force; but with the elastic ligature it was possible to tie so as to wholly occlude the vessels, and, owing to its elasticity, it will follow the recession of tissue due to shrinkage of the cord.

The most recent, and, perhaps, satisfactory, experiments with

* Medical News and Abstract, November, 1881. London Medical Record, August 15th, 1881.

† Obstetrical Journal of Great Britain, February, 1880. American Journal of Medical Science, April, 1880, page 567.

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ligatures are those lately made by Crede and Weber,* at the Leipsig Obstetric Clinic. In repeating Budin's experiments, they found that a single linen ligature upon a large cord was not sufficient to prevent the passage of water through its vessels under moderate pressure. Strong pressure was followed by like results when the ligature was wound two, three, and four times around the funis and tied as tightly as possible. With shrinkage of the cord, the ligatures were loosened. They decided that, of all the materials used for ligatures, caoutchouc, on account of its elasticity, thereby following up the shrinkage of the cord, is the best. This material, or a slender, rubber drainage-tube, has been used in their clinic since July, 1883, with perfect success, and they have demonstrated that, if well applied, secondary hemorrhage is impossible. It can, therefore, be applied quite near the umbilicus — "an advantage not to be undervalued, for the shorter the residual cord, the less danger of traumatic inflammation of the navel."

Crede and Weber, in the article above alluded to, give Budin the credit of first using the elastic ligature on the funis. I am not able to give the exact date of his first use of it, but place it in 1879, as the article referred to, in the *Obstetrical Journal of Great Britain*, February, 1880, speaks of Budin's communication and experiments as recent. The same article also says "'The Caoutchouc Ligature' was the subject of a communication by Dr. Dickson to the Obstetrical Society of Edinburgh in 1874, but was not received with much favor." If these dates are correct, as I believe them to be, priority of use for this purpose must be accredited to America, for Dr. James Craig, of Jersey City, New Jersey, used it over twenty years ago, and it was the subject of a paper by him published in the transactions of the Medical Society of New Jersey in

* Abstract of Crede and Weber's paper, by Dr. C. M. Green, Boston Medical and Surgical Journal, January 29th, 1885, from Archiv für Gynäkologie, Band XXIII., Heft 1; also, American Journal of Medical Science, April, 1885, page 597.

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1870.* He used the rubber band known as Faber's No. 20. In a letter to me, under the date of February 14th, 1885, Dr. Craig says: "I cannot give the exact date, but began the use of the elastic ligature in the latter part of 1861 or early part of 1862. Its use for that purpose was original with me."

The necessity — or, at least, the advisability — of the ligature being conceded, at what distance from the abdomen should it be applied? Among authors and practitioners, as will be seen by the accompanying tables, a wide difference of opinion and practice prevails, varying from "close to the abdomen" to "three or more inches." As the stump of the cord soon becomes dead up to the line of junction with the abdomen, often becomes fetid and offensive, and is liable to be pulled in handling and dressing the child, it would seem reasonable that the shorter the stump, the better.

Two reasons are given why the stump should be left long — first, to avoid tying a loop of intestine which might be protruding into a perforate funis; second, to leave room for re-tying in case of hemorrhage. The first condition rarely exists, but may readily be avoided by careful examination, or by temporarily tying a few inches from the abdomen and subsequently re-tying after the child is washed and the physician has more leisure. The second reason is insufficient, for a second ligature could be as readily applied close beside or within one-eighth or one-fourth of an inch from the first as at a greater distance; and if the stump be maintained impervious until exuviation occurs, it matters not whether the thrombus in the stump be one-half of an inch in length or three. I have tied at variable distances, but of late years tie at about one-fourth of an inch from the abdomen, and the stump, when fresh, is scarcely half an inch long, and by shrinkage becomes even shorter. In a case of secondary hemorrhage from a short stump, on the third day, in consequence of shrinkage of the cord — a cotton ligature being used — I re-tied close to the integument very easily and with good result.

* Medical and Surgical Reporter, November 29th, 1884.

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The advantages of a short stump are: less dead tissue; less fetor and offense if the child be carelessly cared for after passing from under the physician's observation; the short stump shrinks down and sinks into the umbilical depression, becoming a mere scab or crust, and, not being prominent, like a long stump, is less liable to get pulled or torn from rough handling — or, as Crede and Weber state it, "The shorter the residual cord, the less danger of traumatic inflammation of the navel."*

The cord being tied and cut, how should it be dressed? Here, too, will be found much variety in the methods in use, from the old woman's way of folding in a scorched, greased rag and tightly binding down under the belly-band, to no dressing whatever. A natural and desired result to be obtained should be a safe guide in treating the stump. This is no less than the separation of the cord and complete cicatrization of the umbilicus. The residual cord dies, and is generally said to putrefy and ulcerate off at the navel. I admit that the statement is mainly correct as the stump is ordinarily treated — with greased rag and belly-band — but that it is a natural, proper, or desirable process, I most emphatically deny; the stump should neither putrefy nor slough. M. Billard says: "The cord does not putrefy, but dries and shrivels up. This drying only occurs in the living child; if the child dies before the cord separates, the drying is immediately suspended. The cord of a dead child never dries, but putrefies."† Vogel says: "Desiccation occurs only in the living child. If the child dies soon after birth, the cord does not dry, but rots."‡ J. Lewis Smith says: "When properly managed, the cord desiccates and drops off between the third and ninth days. The nurse should not be allowed to oil it, as she will sometimes do unless forbidden, as this retards desiccation. . . . If the dressing of the cord be allowed to remain wet from urine or otherwise, the cord does not desiccate, but decomposes."§ Leish-

* *Ante* cit.

† Maladies des enfans, quoted by Dewees.

‡ Diseases of Children. § *Ibid.*

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man says: "The stump undergoes a process of putrefaction which is a form of withering, rather than of moist putrefaction."* Churchill says "The stump dries up and withers."† Playfair speaks of the cord as "withered."‡ Meigs says: "It becomes perfectly dry, and of a crisp, corneous hardness."§

Does not this process indicate more of a vital action, in the drying and separation of the cord only on the living child, than is generally suspected? That this is the natural process is proven by observations on the inferior animals, or on the human infant, by treating the stump dry, or, better yet, by free exposure to the air without any dressing whatever; and it is in direct and desirable opposition to the "putrefying mass" and "putrescent discharges" often mentioned and met with. That this process of desiccation should be promoted, and that our treatment should be directed to secure this result, is evident; therefore, all greasy or moist applications should be absolutely discarded. Many authors and practitioners, as shown in the tables, dress with dry linen or absorbent cotton, simply to protect the stump and prevent contact with the skin. This is a vast improvement over the greased rag, but any pad or compress over the stump confines to it the heat of the body, and thus tends to keep it moist and prevent rapid drying. Free exposure to the air is far better adapted to secure the desired result, and the application of some antiseptic absorbent powder will prevent all excoriation or chafing of the skin.

The separation of the stump occurs after the third day, and I am satisfied that the process occurs more rapidly with the dry or exposed treatment than when the stump is kept moist with grease, vaseline, or by being confined near the warm body by compress and band. If the stump is kept moist and decomposes, it sloughs or ulcerates off, but with the natural or dry treatment it is cast off by a process of absorption,‖ or, as Goodell aptly puts it, "Falling off, like a ripe fruit, without leaving a raw stump."¶

* System of Midwifery. † *Ibid.* ‡ *Ibid.*
§ Meigs, Diseases of Children. ‖ *Ibid.*
¶ Note in Parry's edition Leishman's System of Midwifery.

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After the separation of the stump the umbilicus may remain an open ulcer, which is slow to heal, and may become a source of purulent infection and danger to the child. This may be the result of improper treatment of the stump. Condie says: "It is very generally the result of neglect or mismanagement on the part of the nurse; in a few instances, the result of slow and imperfect separation of the cord, rude management in washing and dressing, rude dragging or other injudicious attempts at separation, or by the ridiculous practice of dressing the navel subsequently with a burnt rag, grease, and even more improper applications."* J. Lewis Smith, after objecting to the moist treatment of the cord, as before noted, adds, "The decaying cord is apt to produce inflammation of the navel."

Ulceration of the navel has often been found to lead to fatal pyæmia by infection through the umbilical vessels, as noticed a few years ago by Mr. Jonathan Hutchinson and Drs. Roper, Hasse, and Arthur Edis, of London.† Dr. Max Runge, of Berlin, reports forty-five cases of navel ill, in twenty-four of which a careful autopsy was made. In every case he found inflammation of the umbilical arteries, from which he concludes that "Inflammation of the umbilical arteries is not in all cases a disease tending to recovery; it may, *per se*, cause death, and it may lead to pyæmia. In the cases in which pyæmia occurred, there was no channel except the umbilicus through which the infective poison could have entered the circulation."‡ The diagnosis was exceedingly obscure. In many of Dr. Runge's cases its existence was not suspected during life. The death-rate was about forty-five per cent. If the disease is of septic origin from infection through the umbilicus, the obvious source of such infection is the bit of dead cord between the abdominal wall and the ligature. To prevent such infection, an aseptic condition of this structure must be maintained. With this view, Dr. Runge carefully ex-

* Diseases of Children.

† American Journal of Medical Science, April, 1882, page 606.

‡ Zeitschrift für Geburtshülfe und Gynäkologie, Band VI., Heft 1.

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perimented with different methods of treating the stump of the cord after its ligature, as follows: 1, simply exposed to the air; 2, enclosed in a glass case, so that evaporation of moisture was prevented; 3, wrapped in a rag soaked in carbolized oil; 4, wrapped in a dry rag. Nos. 1 and 4, which were simply kept dry, quickly mummified without smell; No. 2, in which evaporation was prevented, soon became fetid; No. 3 did not get fetid, but did not shrivel up. He concludes that the best way of treating the stump is to keep it as dry as possible, the only application used being a powder of salicylic acid and starch. More recently, Monti * supports Runge from observation of cases. Is it not possible that occasional deaths in early infancy, which occur in nearly every one's practice, may be sometimes due to this unsuspected cause?

Another danger from an unhealed navel after the separation of the cord is the liability to hemorrhage--an accident of great gravity, generally proving fatal in spite of even heroic remedies. Usually the umbilical vessels become impervious from the second to the fifth day, and before the separation of the cord. This obliteration extends to the liver in the vein and to the fundus of the bladder in the arteries; but, from some constitutional vice, a hemorrhagic diathesis, or traumatic injury by rude separation of the cord, hemorrhage may occur from the unclosed vessels or from capillary oozing. It may occur before birth from laceration or injury to the cord (Bouchut).† Minot, Stephen Smith, J. Foster Jenkins, Bowditch, Bailey, and Otis have written exhaustively on this subject. The prognosis is very unfavorable; five-sixths of the cases prove fatal.‡ Styptics, compression, constant pressure with the fingers, and filling the navel with plaster of Paris, may be tried. These failing, deep ligation with needles may be resorted to, as has been done with success.

These dangers admonish us to secure as early and complete cicatrization as possible, and though their occurrence is rare,

* Archiv fur Kinder. American Journal of Obstetrics, July, 1882.
† J. Lewis Smith, Diseases of Children. ‡ *Ibid.*

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yet who can tell how soon a case may occur to one of us? Ulcers of the umbilicus should be treated with iodoform, bismuth subnitrate, or calomel, and it may be necessary to use nitrate of silver also. It should be kept perfectly dry, clean, and free from grease of all kinds.

It has long been the custom to envelop the infant's body in a belly-band. The origin of this custom I have been unable to ascertain, but it is quite general among civilized peoples. The main reasons given for its use, as will be seen, are: 1, warmth; 2, to retain the dressing of the cord; 3, to support the abdominal walls and prevent umbilical hernia. But I believe that a large majority of the profession use it, or allow its use, as the old women do, because they have been taught to do so, and have never given the subject sufficient thought to see its uselessness, or have not the courage or inclination to oppose an old custom.

If warmth be the object of its use, then it can be readily discarded and better replaced by extra clothing. If no dressing be applied to the stump, as practiced by many of our best obstetricians, it will not be needed. At any rate, it is not needed for that purpose after the separation of the cord and healing of the navel. Is it necessary to give support to the abdominal walls? Has nature, usually so careful of her work, made such a blunder in this particular as to require our constant interference to remedy the defect? The abdominal walls are composed of tough, aponeurotic membranes, between which are several muscular layers whose fibers traverse the abdomen in different directions, in a manner that insures the greatest possible strength. In no other part of the body is there so complete an arrangement of soft tissues, insuring stability and permanence. At the umbilical and inguinal rings only is there any defect or weakness, and at these points only do the walls give way, except in case of traumatic injury. The abdominal walls need no support, save such as nature provides, in the development of muscular and fibrous substance. Can this be promoted by bandaging or by being kept at rest? The very

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foundation principles upon which strong muscular and fibrous development and growth depend are free exercise and free play, which, in the infant, are produced by the acts of respiration and crying. How can this be had if confined by the band?

Does its use prevent umbilical hernia? The umbilical ring is the last abdominal opening to close in fœtal development; but an arrest or delay in development may leave this part of the abdomen deficient, and protrusion of some part of the abdominal contents will result, aided by violent coughing, straining, or crying. The umbilical ring is surrounded by fibers from the sheaths of the recti muscles, which cross, decussate, and interlace, forming parabolic curves, the arrangement of which gives a circular investment, which, in contracting, tends powerfully to close the opening,* and the contraction and exercise of all the abdominal muscles aid in producing this effect; hence, the greater the development of these muscles, the better will this result be accomplished, or, as Wood states it, "Up to the period of puberty, exercise of the abdominal muscles will aid in the cure of congenital umbilical hernia."†

Condie says "Umbilical hernia (in the infant) is strictly a congenital hernia."‡ Dewees states that "It is, in general, owing to a natural defect of the part."§ And this is the almost universal opinion of the leading surgeons of to-day. Therefore, it being mainly caused by a deficiency at the umbilical ring, and as there is a natural tendency for this to be closed by development of tendinous fibers upon muscular exercise of the abdomen, any application of a general abdominal band sufficient to have any retaining effect upon a presumptive or real hernia must so confine the abdomen as to defeat the very object that should be always kept in view, viz., its radical cure. Nay, further, the band, by confining the abdomen, pre-

* Wood, International Surgery, Vol. V., article "Hernia." † *Ibid.*
‡ Diseases of Children.
§ Dewees on Children.

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vents an elastic expansion of its walls, compresses its contents and forces them into the weaker openings, and tends to produce the very thing we wish to avoid. On this we have the testimony of Dewees, who says: "Umbilical hernia is often caused by a too tight application of the belly-band when, from the conformation of the parts, there is a disposition to it."* Hodge says: "Among the causes of umbilical hernia ought to be mentioned, perhaps, the binder usually applied to the body of the infant. Nurses, under various pretenses, often apply it so tightly as to compress the intestines, and, of course, force them violently against the natural openings of the umbilicus and groin." I am aware that the most of our teachers of obstetrics advocate or allow its use. Even Dewees taught that it should be worn until the child was four months old. But many prominent obstetricians and practitioners of the present time have wholly discarded it, as will be seen. Among the number, Goodell, A. F. A. King, and Byford have been pioneers in the movement, and have done much toward educating the profession that its use is not only unnecessary, but mainly injurious. It goes for naught that its advocates say that it should not be tightly applied; the nurse will, and invariably does, pin it firmly, generally tightly, in the physician's absence. It not only retards the development of the abdominal muscles, but it interferes with respiration, prevents proper peristaltic action of the bowels, makes the child uncomfortable after nursing, and subjects it to being dosed for colic; and any supposed advantage gained by support of the umbilicus is more than counterbalanced by the tendency to force the viscera into the unsupported and weaker inguinal openings.

In the following tables, No. 1 exhibits the opinions of such authors as I have been able to consult on the proper distance from the abdomen to tie the cord, method of dressing the stump, and use of the belly-band; No. 2 shows the present American teaching and practice in regard to the same.

* Diseases of Children.

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TREATMENT OF THE UMBILICUS.

TABLE NO. 1—Showing the Teachings of Various Authors in Relation to the Distance from the Abdomen in Tying the Cord, the Method of Treating the Stump, and the Use of the Belly-band.

AUTHOR.	LIGATURE FROM ABDOMEN.	DRESSING OF STUMP.	USE OF BELLY-BAND.
Leishman, System of Midwifery.	2 to 3 inches.	Wrap in square of cotton or linen. After separation, apply soft pad of linen.	To retain dressing.
Verrier, Manual of Obstetrics.	6 centimeters, 2 to 2.5 inches.	Wrap in greased compress, changed from time to time.	To retain dressing. Wear for six weeks.
Playfair, System of Midwifery.	1½ inches. Strips cord.	Wrap in charred linen, renewed daily. After separation, a pad of soft linen placed over the umbilicus.	To retain dressing, and prevent tendency to umbilical hernia.
Tyler Smith, Prin. and Prac. of Obstet.	2½ to 3 inches.	Wrap in singed linen.	.....
Cazeaux, Theoret. and Pract. Mid.	"Strips cord. As a general rule, it is best to leave sufficient space for second ligature, if needed."	Linen compress over and around the cord.	Uses band twice around the body.
Hodge, Prin. and Prac. of Obstet.	.....	"The dressing of the umbilicus demands no other attention than keeping the parts clean, so as to keep the skin from being irritated by the putrescent discharges from the cord."	"Among the causes of umbilical hernia ought, perhaps, to be mentioned the binder usually applied to the body of the infant. Nurses, under various pretenses, often apply it so tightly as to compress the intestines, and, of course, force them violently against the natural openings of the umbilicus and groin."
Bedford, Prin. and Prac. of Obstet.	2 inches.	With linen compress and band. Burnt linen after separation.	.....

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MEIGS, Treatise on Obstetrics, Diseases of Children.	1½ inches.	Envelop in square of linen, to receive discharge from cord and prevent it from being glued to the infant's clothes. "There is no other use in the dressing of which I am aware."	To retain dressing, favor recession of the umbilicus, and prevent umbilical hernia.
MEADOWS, Manual of Midwifery.	2½ inches.	.....	.....
WARRINGTON, Obstetrical Catechism.	2 inches.	Envelop in square of linen, to prevent contact with abdomen as a putrefying mass, and cause irritation.	Merely to support the cord and retain dressings.
RYAN, Manual of Midwifery.	2 inches.	Envelop in soft rag, secured by band.	.....
SCHROEDER, Manual of Midwifery.	3 centimeters.	Envelop in piece of old linen, secured by band. Renew in a few days. After separation, all dressings may be omitted.	It is best to leave the child, after separation of the stump, without the binder.
M. CHAILLY, Midwifery.	Strips cord; 2 or 3 fingers' breadth.	Envelop in linen compress, secured by band.	.....
TANNER, Hand-book of Pract. Obst.	2½ inches.	.....	.....
MILLER, Human Parturition.	2 fingers' breadth	.....	.....
VOGEL, Diseases of Children.	.....	Wrap in soft piece of cotton or linen rag, secured by band.	To retain dressing.
DEWEES, System of Midwifery, Diseases of Children.	1½ inches.	Dress with linen rag and belly-band. "The only necessity for applying anything to this part is to prevent the dead navel-string from coming in contact with the skin of the child."	Band should be worn until child is four months old, to give a general support to the abdomen and a particular one to the navel, to prevent umbilical hernia; and adds: "Great care must be taken, or it will cause the very result we wish to avoid."

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TABLE NO. 1—CONTINUED.

AUTHOR.	LIGATURE FROM ABDOMEN.	DRESSING OF STUMP.	USE OF BELLY-BAND.
BYFORD, Theory and Practice of Obstetrics.	1 inch.	"Covered longitudinally with soft linen, and then rolled in soft tape."	"Nurses and mothers should be taught that there is no danger of the child falling to pieces or sustaining rupture if not encased in a swathe from head to foot. The belly-band should be unceremoniously discarded, as impeding respiration and circulation."
CREDE AND WEBER, Archiv fur Gynakologie, Band XXIII., Heft 1.	Close to abdomen. Uses the elastic ligature.	Envelop in dry absorbent cotton, renewed daily.	To retain dressing.
CHURCHILL, System of Midwifery.	2 inches.	Stump dries up and withers.	.....
CORR, Obstetrical Questions and Answers.	1 inch.	Cover stump longitudinally with soft linen, and rolled in soft tape from umbilicus outwards. So dressed merely to keep dessicating cord from contact with the skin.	Belly-band should be discarded, as impeding respiration and circulation.
A. F. A. KING, Manual of Obstetrics.	1½ inches. Strips cord.	"This old-fashioned custom [enveloped in square of greased rag, secured by the belly-band] is not, by any means, a good one. It is inconvenient, as well as uncomfortable and injurious to the child. The cord is better left without any dressing at all, except a little raw cotton (borated or slightly carbolized), to absorb its moisture and prevent its sticking to the clothing."	"If there be no defective development of the abdominal walls, the infant needs no artificial support."
CLAY, Complete Hand-book of Obstetrical Surgery.	2½ inches.	.....	.....
ROBERTS, Guide to the Practice of Midwifery.	2 inches.	.....	.....

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TREATMENT OF THE UMBILICUS.

TABLE NO. 2—SHOWING PRESENT AMERICAN TEACHING AND PRACTICE IN RELATION TO DISTANCE FROM THE ABDOMEN IN TYING THE CORD, THE METHOD OF DRESSING THE STUMP, AND THE USE OF THE BELLY-BAND (*as ascertained by private correspondence with professors and teachers of Obstetrics and prominent practitioners throughout the country*).

AUTHORITY.	LIGATURE FROM ABDOMEN.	DRESSING OF STUMP.	USE OF BELLY-BAND.
W. M. POLK, M.D. University Medical College, New York.	3 inches.	"Envelop in a square of linen, after dusting with powdered starch. The object is to favor rapid drying of the stump."	To retain dressing in place.
E. W. JENKS, M.D. Detroit, Mich.	2 inches.	Envelop in double fold of linen, retained by band.	"I pay no attention to it, except when required for stump, or when there are indications of umbilical hernia."
R. S. SUTTON, M.D. Pittsburgh, Pa.	4 inches.	Envelop in dry muslin. "It remains perfectly dry."	"1st. To secure compress. 2d. To prevent colic. 3d. For warmth. 4th. Custom."
BENJ. F. DAWSON, M.D. Post-graduate School of Medicine, New York.	1 inch.	"I have not of late, even in my own family, applied any dressing to the stump, leaving it free to dry up, which occurs very rapidly."	Does not use it, "For the reason that it is unnatural, annoys the infant, and prevents proper peristaltic action of the bowels."
H. C. PEARCE, M.D. Columbus Med. College, Columbus, Ohio.	2 inches.	Envelop in absorbent cotton.	To support the abdominal walls and prevent umbilical hernia.
CHAS. JEWETT, M.D. Long Island Hosp. Med. Coll., Brooklyn, N. Y.	1½ inches. Strips cord.	Envelop in soft, dry muslin or absorbent cotton, to promote rapid dessication. No grease.	"To prevent umbilical protrusion."
M. MICHEL, M.D. Med. Coll. of South Carolina, Charleston.	½ to 1 inch.	"Dry, borated cotton."	"Only to adjust navel dressing."

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TABLE NO. 2—CONTINUED.

AUTHORITY.	LIGATURE FROM ABDOMEN.	DRESSING OF STUMP.	USE OF BELLY-BAND.
MARY P. JACOBI, M.D. Woman's Medical College. Post-graduate School of Medicine, New York.	1 inch.	Cover with square of fine linen smeared with vaseline.	"Partly for warmth and partly to protect umbilical ring, during retraction and cicatrization, against pressure of intestines."
G. A. MOSES, M.D. St. Louis Medical College.	1½ to 2 inches. Strips, if large.	"Let it strictly alone, no dressing whatever being required."	"No, unless some reason appears. It is ordinarily useless, and perhaps hurtful, by producing pressure."
E. L. PARTRIDGE, M.D. Post-graduate School of Med. Coll. of Phys. and Surg., New York.	1 inch. Strips cord.	"Place stump in a piece of folded soft linen and leave to nature."	"For warmth and to protect stump and dressing."
B. B. BROWNE, M.D. Polyclinic Woman's Med. Coll., Baltimore.	1½ inches.	Envelop in old linen dipped in clean lard.	"To retain dressing and prevent umbilical hernia."
M. D. MANN, M.D. Med. Dept. Buffalo University, Buffalo, N. Y.	1½ to 2 inches.	Wrap in absorbent cotton and let alone. No vaseline or grease.	For warmth and to retain dressing.
WM. T. LUSK, M.D. Bellevue Hospital Med. Coll., New York.	2 inches.	"Wrap in borated cotton, and direct to left side."	"To retain dressing."
CHRIST. TOMKINS, M.D. Med. Coll. of Virginia, Richmond.	2½ inches.	.....	For comfort, warmth, and to prevent umbilical hernia.
W. H. WATHEN, M.D. Kentucky School of Med., Louisville.	1 inch.	Envelop in old linen or fine cotton.	"To hold cord in position, furnish support to abdomen of child, and give abdomen better shape."
J. H. CARSTENS, M.D. Detroit Medical College, Detroit, Mich.	1½ inches.	Envelop in oiled cloth.	"To prevent a tearing of cord near abdomen a day or two after birth. This might cause hemorrhage. Have seen such cases."

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W. H. Bolling, M.D. Hospital Coll. of Med., Louisville, Ky.	"Do not ligate cord; not necessary."	"I cut the cord when the infant is three-fourths of an hour old, at one and one-half inches from the abdomen. By this method no dressing or application is necessary."	"A lightly-applied flannel bandage until cord drops off, absorbs drainage, keeps the belly warm, and gratifies mother and nurse."
Wm. C. Dabney, M.D. Pres. Med. Exam. Board of Virginia, Charlottesville.	1 inch.	Envelop in square of linen smeared with vaseline.	"To prevent umbilical hernia."
W. W. Jaggard, M.D. Chicago Medical College, Chicago, Ill.	1½ to 2 inches.	"Powder stump with iodoform and envelop in disinfected surgeons' lint. Renew daily."	"To retain stump in place."
H. F. Campbell, M.D. President of the American Medical Association, Augusta, Ga.	2 inches.	Fold in square of linen smeared with vaseline or lard.	"1st. On account of precedent or habit. 2d. Because my experience confirms its value. 3d. Because it accords with good surgical principles, that we should not leave vessels which so recently transmitted so large a current of blood without the security and support of the belly-band, until their caliber has been, by clot or otherwise, obliterated, and until adhesive inflammation has sealed the point of separation between the dead and living vessels. Without this support this union might be broken prematurely."
P. S. Leisenring, M.D. Omaha Medical College, Omaha, Neb.	1½ to 2 inches.	Wrap in soft linen or muslin oiled with vaseline.	"1st. Because it keeps the dressing of the stump in place. 2d. I often think it prevents umbilical hernia. I always apply it loosely."
B. Buckle, M.D. Med. Dept. University of Louisville, Kentucky.	1½ to 2 inches.	Wrap in clean linen.	To protect stump and prevent umbilical hernia.
J. A. Scroggs, M.D. Coll. of Phys. and Surg., Keokuk, Iowa.	1½ inches.	Wrap in absorbent cotton.	To retain dressing.

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TABLE NO. 2—CONTINUED.

AUTHORITY.	LIGATURE FROM ABDOMEN.	DRESSING OF STUMP.	USE OF BELLY-BAND.
ROBERT BATTY, M.D. Rome, Ga.	2 fingers' breadth.	Envelop in a soft cloth.	To retain dressing.
THAD. A. REAMY, M.D. Medical College of Ohio, Cincinnati.	2 inches. Strips cord.	Dress with a square of muslin. Stump allowed to shrivel and drop off of its own accord.	"Use belly-band, but not tightly, for purpose of dressing stump and preventing friction. It also aids, if properly applied and a proper pad laid under it, to prevent protrusion."
GEO. E. MECUEN, M.D. Coll. of Phys. and Surg., Boston, Mass.	2 inches. Winds with rubber band. "Don't consider ligation necessary."	"Pass stump through hole in square of muslin and surround with borated cotton."	"For protection of cord and warmth only. Am careful to have it loose, so as not to impede respiration."
T. GAILARD THOMAS, M.D. Coll. of Phys. and Surg., New York.	2 inches.	Wrap in carbolized vaseline and lay on abdomen under compress.	"To hold compress in place and prevent hernia in early period of infancy, from crying, etc."
WM. GOODELL, M.D. University of Pennsylvania, Philadelphia.	3 fingers' breadth.	"After being stripped of blood and tied, the cord has nothing more done to it, but dangles undressed. Thus treated, it dries up without bad smell, and drops off without leaving a sore. I have pursued this plan with 2,100 infants, and always with great satisfaction."	"No, because it is of no use whatever in preventing umbilical hernia, and it tends to inguinal hernia. Among the 2,100 infants dressed without the belly-band, I cannot recall one that subsequently needed a truss for umbilical hernia."
JOHN MOFFET, M.D. Central Coll. of Phys. and Surg., Indianapolis, Ind.	2 to 3 inches.	Envelop in square of soft muslin, with hole burned in center and greased with sweet lard.	"To support that part of the abdominal wall last to close in fœtal development, the umbilical region."
A. ADY, M.D. Muscatine, Iowa.	¼ inch, and cut close.	"Let it alone; no dressing of any kind. It will dessicate and become a mere scab in twenty-four hours, generally separating in four days without suppuration. I have treated over five hundred cases without trouble of any kind."	Does not use it. "It is a useless relic, conducing to hernia, both inguinal and umbilical. Interferes with respiration and the early healing of the umbilicus. Have not had much trouble in overcoming the prejudice of the people."

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B. McE. Emmet, M.D. Post-graduate Medical School, New York.	1 inch.	"Wrap in soft cloth dusted with iodoform and smeared with cold cream."	"To hold dressing of stump and favor recession of umbilicus after separation."
F. E. Beckwith, M.D. Med. Dept. of Yale, New Haven, Conn.	1 inch.	Dress with vaseline and soft linen.	"For warmth only, with a very little support."
Jos. T. Jonson, M.D. Med. Dept. of University of Georgetown, D. C.	2 to 3 inches.	Compress of absorbent cotton.	Custom. "I think often too tight."
Chas. M. Green, M.D. Med. Dept. of Harvard, Boston.	1½ inches.	"I twist about the stump a strip of linen and place it in a pad of linen."	"To protect the stump as an abdominal support, and to prevent umbilical hernia."
W. H. Byford, M.D. Rush Med. Coll., Chicago.	1½ inches.	"Simply wrap in dry cotton until it drops off."	Does not use it, "Because I think it unnecessary."
B. F. Baer, M.D. Maternity Hospital, Philadelphia.	1½ inches. Strips cord.	Cover with borated or salicylated cotton.	"To support the stump dressing only."
F. M. Johnson, M.D. Kansas City Med. Coll., Kansas City, Mo.	2 inches. Strips cord.	Envelop in dry linen or cotton cloth. No grease or oil.	To hold dressing and prevent umbilical hernia.
C. F. Dutton, M.D. Med. Dept. Wooster University, Cleveland, Ohio.	2 inches.	Envelop in linen. Oil abdomen to prevent sticking.	"Sometimes, because nurses and mothers demand it. Sometimes not, because it is useless, and, if tightly applied, injurious. When I can have my own way I omit it entirely, and dress with absorbent powder or carbolized cotton. Cut stump shorter for latter dressing."
A. Reeves Jackson, M.D. Coll. of Phys. and Surg., Chicago.	1½ inches.	Wind stump with roller bandage one-half inch wide.	"I permit the use of a belly-band if loosely applied. I prefer not using it, because it is unnecessary."
G. O. Morgridge, M.D. Muscatine, Iowa.	As close as possible and not include the integument.	Cover with a piece of old linen.	"I do not use it. I think it encumbers the child, and often renders it uncomfortable. It can do no good, and, if tightly adjusted, does harm."

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TABLE NO. 2—CONTINUED.

AUTHORITY.	LIGATURE FROM ABDOMEN.	TREATMENT OF STUMP.	USE OF BELLY-BAND.
W. H. TAYLOR, M.D. Miami Med. Coll., Cincinnati, Ohio.	2 inches.	Envelop in cotton and cover with a compress.	"To protect cord from injury in dressing child."
ELY VAN DE WARKER, M.D. Syracuse, N. Y.	2 inches.	Wrap in absorbent cotton.	"To give gentle support to abdomen of child."
W. H. SHARP, M.D. Volcano, W. Va.	1¼ to 1½ inches. Strips, if large.	Wrap in greasy linen or cotton cloth. "Sometimes wind cord as one would wind a cut finger."	From habit and deference to custom. Thinks it neither of benefit nor injury to child.
JAS. K. CHADWICK, M.D. Med. Dept. of Harvard, Boston.	2 to 3 inches.	"Wrap in dry linen, so that it may dry up and not slough, as when kept moist."	"Because I was taught to do so, and have fancied that the band, to a moderate extent, supported the abdominal walls and tended to prevent umbilical hernia."
J. F. KENNEDY, M.D. Iowa Coll. of Phys. and Surg., Des Moines, Iowa.	1½ to 2 inches.	Wrap in square of soft linen or muslin.	"Was so taught by Meigs and Bedford. Have practiced it for many years, have seen no bad effects, and know of no good reason for omitting it."
C. HENRI LEONARD, M.D. Michigan Medical Coll., Detroit.	2 inches.	Pass through hole in square of old linen. Surround with cotton and cover with another piece of linen.	To retain dressing, protect stump from injury, and prevent umbilical hernia.
ELLERSLIE WALLACE, M.D. Jefferson Medical Coll., Philadelphia.	1 inch. Strips cord.	"I do not wrap the cord in a rag. I grease the abdomen around the cord, lay the cord down, and apply the bandage."	"To prevent protrusion at the umbilicus, lest hernia occur."
JOHN M. KEATING, M.D. Philadelphia Hospital.	2 inches. Strips cord and ties for precaution.	Envelop in square of soft linen. "No vaseline or ointment whatever."	"I use a thin flannel belly-band, using no compression, simply to give warmth and prevent undue straining, in order to avoid umbilical hernia."
J. McF. GASTON, M.D. Atlanta, Ga.	2 inches.	Folded in square of old cotton or linen.	To retain dressing and prevent any tendency to umbilical hernia.

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T. A. Ashby, M.D. Polyclinic, Post-graduate Med. School, Baltimore.	2½ to 3 inches.	"Pass stump through hole in square of muslin. Surround it with two rolls of muslin along either side. Cover with muslin and band."	To protect cord from friction and displacement.
G. J. Engelmann, M.D. Post-graduate School of Medicine, St. Louis.	4 fingers' breadth.	"Wash with 2 per cent carbolic solution. Strew with iodoform, and dress with square of cotton or lint rag anointed with 10 per cent carbolated vaseline, and changed daily with bath. After stump drops, iodoform and carbolated vaseline, with a little cotton on the umbilicus. Never have suppuration."	To retain dressings, prevent violent distension of abdominal muscles, and overcome tendency to umbilical hernia.
A. T. Woodward, M.D. University of Vermont, Brandon.	1 inch.	"Wash stump thoroughly with 1-200 bichloride solution, and envelop in muslin smeared with vaseline. No other dressing."	"Do not use it unless forced to by prejudice which I do not see fit to oppose. I do not see any necessity for any such support."
J. P. Reynolds, M.D. Med. Dept. of Harvard, Boston.	1½ inches. Strips cord.	"I cover it in any convenient way that will protect the skin of the child from contact with the old, decaying tissue. Free exposure to the air, or covering it with some antiseptic material, would probably be better."	"Band should not be too tightly fastened, so as to impede breathing or crying."
H. H. Powell, M.D. Med. Dept. Western Reserve University, Cleveland, Ohio.	2½ inches. Uses linen tape.	Wrap in cotton without oiling. "I believe it to be an error to oil it, as it prevents dessication. Have seen nothing gained by stripping the cord." Bismuth after separation.	To retain dressing and prevent friction or pulling of cord.
Paul F. Munde, M.D. Polyclinic (New York), Dartmouth Coll.	3 inches. Strips cord.	Envelop in dry linen or carbolized absorbent cotton.	"Because it tends to prevent umbilical hernia, does no harm, and protects the physician from blame in case of hernia."
E. S. Dunster, M.D. Michigan University, Dartmouth Coll.	3 inches. Strips cord.	Envelop in soft linen.	"Not if I can avoid it, as nurses invariably pin it too tight. Its only value is for warmth and to hold the cord in place until it drops off."

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TABLE NO. 2—CONTINUED.

AUTHORITY.	LIGATURE FROM ABDOMEN.	DRESSING OF STUMP.	USE OF BELLY-BAND.
HENRY C. GHENT, M.D. Belton, Texas.	1 to 1½ inches.	Wrap in old linen or muslin.	"I use the band partly for the purpose of keeping the dressing in place. The child being human, and no possible harm resulting, I would dress the cord for the sake of dressing it, if for nothing else."
JAMES CRAIG, M.D. Jersey City, N. J.	2½ to 3 inches. Uses elastic ligature.	Cotton; absorbent preferred.	"To retain dressing on stump and prevent umbilical hernia."
R. A. KINLOCK, M.D. Med. Coll. of South Carolina, Charleston.	¾ inch.	Absorbent cotton.	"Simply from habit, and to retain dressing to stump."
T. A. POTTER, M.D. Boston Lying-in Hospital.	1 inch.	Folded through square of linen oiled with sweet oil, and covered with a compress of linen. Carbolized oil, if it becomes offensive.	"To retain the dressing, to secure uniform warmth to the abdomen, to give additional support, and prevent umbilical hernia."
H. N. SMALL, M.D. School for Medical Instruction, Portland, Me.	2 inches.	"Bandage the cord with linen, and keep the parts dry and clean."	"Just for very cautious support."
THEOPH. PARVIN, M.D. Jefferson Medical College, Philadelphia.	1½ inches. Strips cord.	"Wrap with a few turns of an inch roller, or simply wrap with absorbent, antiseptic cotton."	"I let it be used rather than use it; but, of course, it must not strongly compress. If properly applied, it protects against dragging stump of cord."
ANITA E. TYNG, M.D. Resident Physician Woman's Hospital, Philadelphia.	2 inches. Not tied.	Cord is not cut on the bed, unless some emergency occurs. Child is let lie until placenta is expelled. The placenta is put in a basin and set in the crib beside the child until the doctor is ready to attend to it. Stump has blood squeezed out after being cut. Seldom have hemorrhage. A few cases have occurred when ligature was used. No dressing of any kind is used—not even a band.	.....

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CONCLUSIONS.

1. After respiration is fully established the cord should be stripped and tied, after careful inspection, quite close to the abdomen, and the stump cut short.

2. The elastic ligature is easily applied, and offers the best security against secondary hemorrhage.

3. The stump should be treated dry, by free exposure to the air, aided by some antiseptic absorbent powder, as bismuth, iodoform, or salicylated starch, which will also prevent chafing of the skin. All moist and greasy applications should be avoided; nor should it be confined by compress or band.

4. The belly-band is wholly unnecessary for warmth or dressing. The abdominal walls need no such support. It is of little or no value in preventing umbilical hernia, and has a tendency to produce inguinal hernia. When pinned tightly, as it invariably is by nurses, it impedes respiration, retards proper development of the abdominal muscles, and interferes with proper peristaltic action of the bowels, causing constipation, and renders the child uncomfortable.

5. Being unnecessary, and liable to be injurious, its use should be wholly abandoned.

XXX.

REPORT ON OBSTETRICS AND GYNECOLOGY.

By D. Macrae, M. D., *Council Bluffs.*

Mr. President and Gentlemen:

In preparing a report on Obstetrics and Gynecology, we desire to depart somewhat from the usual epitome of points of progress and improvement to be noted for the past year. While endeavoring to present some of these points, and deductions to be drawn from them, we will give ourselves more latitude, and mention as well some lessons that we ourselves have

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had impressed upon us in that time — lessons which appeal to the ordinary experience of the general practitioner.

The paper by Dr. Thomas, read before the New York Academy of Medicine last year, gave rise to a very warm discussion in regard to the frequent use of vaginal and intra-uterine antiseptic injections in the puerperium, as recommended by him. The matter was discussed at the meeting, and has been the occasion of many articles in the medical journals since then. Some practitioners seem to think that the science of obstetrics is well-nigh perfect — that the mortality is so small that it cannot be improved upon, and that we may well continue in the way of our fathers. I am, however, inclined to think that, while the mortality may be small, very few women recover perfectly from childbirth; that many of their ailments date from some confinement, and that some women are more or less invalids for the rest of their lives. The perfection of the science is manifestly not yet attained. It is evident, for one thing, that sufficient attention is not paid to cleanliness — absolute and perfect cleanliness. While we admit that the frequent use of antiseptic irrigations and intra-uterine injections during the puerperal period, as recommended by Dr. Thomas, are not practicable for the country practitioner, it behooves him, however, to be on his guard that no infecting material is introduced from without. When possible, the vagina and external parts should be thoroughly cleansed, and a disinfectant solution used to bathe these parts in the earlier period of labor. The practitioner of to-day, in obstetrics as in surgery, must have an aseptic examining finger. He must use the nail-brush and soap and water assiduously, and carry his own carbolized vaseline in his case. He must also afterward inculcate a more cleanly condition and more frequent changes of absorbent clothing in the person of the average patient.

In the condition of placenta prævia, too, we do not think we are sufficiently impressed — at least I was not — with the necessity of producing premature labor at an early stage, and before repeated hemorrhages have reduced the patient's

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strength. A lesson may be learned from the following case, which came under the care of the writer a short time ago:

On the night of November 18th, 1884, Mrs. P. had a rather profuse uterine hemorrhage. On my arrival bleeding had ceased, but, from the appearance of the bedding, it must have been quite free for the short time during which it was in progress. She was a primipara, twenty-five years of age, and six months pregnant. The os was out of reach of the examining finger, but the condition of matters was evident enough. Some quieting and astringent remedies were administered and recommended to be used again in the event of fresh hemorrhage. She was instructed on no account to go down stairs, to use hot vaginal douches, and to lie down a great part of the time. From time to time I learned that, though slight hemorrhages frequently recurred, they seemed to give her no particular uneasiness, and were at once controlled by the methods which had been prescribed. At midnight of January 23d I was hastily summoned, "for the waters had broke," my informant said. On my arrival the condition was too pitiful. The bed was deluged with blood; patient pulseless, surface cold and bathed in clammy sweat. She had sighing respiration, and complained of being unable to see. The cervix was high up, and could not be reached with the examining finger. The hand was therefore introduced into the vagina and the os found just sufficiently dilated to admit the forefinger, and the placenta was at once detected. On sweeping the finger around as far as it could reach on the internal surface of the uterus, and thus detaching a portion of the placenta, it being only a partial transplantation, hemorrhage at once ceased. From the critical condition of the patient, it seemed evident enough that whatever was to be done must be done speedily. I therefore sent for my friend, Dr. John Green, with the double view of somewhat relieving myself of the responsibility of conducting such a serious case, and to administer an anæsthetic. He soon arrived and gave a few whiffs of chloroform. This, however, had the effect of producing such an alarming, death-like ap-

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pearance, that he desisted. In the meantime, however, with the finger in the uterus I detected a fœtal hand; so the membranes were ruptured, and the hand hooked out and held with slight traction until the Doctor could return with ether. In the course of twenty minutes he returned and administered the ether. The pressure of the shoulder of the child had by this time dilated the os sufficiently to admit the passage of three fingers, and almost immediately the whole hand was insinuated into the womb and the child turned and delivered alive. A second child had been detected, also presented by the shoulder, which was turned and delivered. On account of the fact that the cord was attached to the portion of placenta which had been detached, the second child was dead. The whole procedure, from the time of introducing the hand into the uterus to the birth of the second child, only occupied a few minutes. Our patient by this time was seemingly moribund. The uterus was as soft as a wet rag, and a drain of blood oozed from the genital passage. The hand, therefore, was soon introduced into the uterus, and the placenta was found in the most completely adherent condition which it has been my lot to meet. The after-birth was peeled and scraped off as thoroughly as possible. A hot and copious intra-uterine douche was then used, which had the effect to produce good contraction. In the meantime alcohol, ammonia, and ergot had been administered, and stimulants were now given *ad libitum*. For about six hours our patient was completely pulseless, but reaction of a kind took place. In twenty-four hours a disagreeable odor was detected emanating from the discharges, and, in spite of supportive treatment and the constant use of antiseptic intra-uterine injections, she died of septicæmia on the seventh day. The first child only lived a few hours.

At the risk of being tedious, I have related this case at some length, partly on account of the rarity of such complicating conditions, and principally to show that in placenta prævia, no matter whether central or otherwise, no confidence can be placed in waiting for developments.

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I have seen six cases of placenta prævia. Four women and one child lived. The other fatal case was a patient whom I had not seen before, but who died as I entered the room. The placenta was between the woman's thighs. The head of the fœtus was in the vagina. Forceps were applied and a dead child withdrawn from a dead mother. So that in any case in which I may be interested, as attendant or consultant, I shall unhesitatingly recommend the immediate induction of labor, and on no account allow the poor woman to run such a tremendous risk for the sake of the sickly sentimentality which would hesitate to sacrifice the life of a child whose chances, at the best, are small.

In gynecology, cocaine — the irrepressible cocaine — bids fair to be of very material service. In slight operations, such as the removal of urethral caruncles and of remnants of the hymen, and hyperesthetic points in connection with vaginismus and such like, it is particularly useful for its local anæsthetic effect. More peculiar still is the fact that in the condition of dispareunia the solution is recommended to be painted on the parts previous to sexual intercourse. In such a case as reported recently, it would also seem to be absolutely necessary for the relief of spasms. In operative procedures on vaginal fistulæ and plastic operations requiring careful denudation and coaptation, cocaine would also seem to be of service; and this not only from its producing almost total insensibility of the mucous membrane to which it is applied, but also from the property it has of preventing, to a great extent, the oozing of blood — oozing which interferes, more or less, with a clear view of the parts — and thus rendering such operations more simple and less bloody.

One of the most interesting, and, as seems to us, most important, new operations, is what is known as the Alexander Adams method of shortening the round ligaments. We are all familiar with the bugbear of chronic retroversion, and, I care not how apt the gynecologist is in mechanical ingenuity, the very best, and the best fitting, pessaries are extremely

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bunglesome apologies for the rectification of what so frequently constitutes a continuous condition of invalidism. According to Dr. William Gardner, of Glasgow, Scotland, the class of cases most fitted for the operation are those of chronic retroflexion with malposition of one or both ovaries. We have not yet had an opportunity to do the operation, but Dr. Gardner describes his method in these words:

"After shaving the mons veneris and groins, I push the finger into the external abdominal ring and mark the invaginated skin with the nail of my forefinger on each side. This marks the center of my first incision, which may be prolonged either upward or downward if difficulties occur. The first incision I make two inches long, in the direction of Poupart's ligament, and parallel to it, dividing, at one stroke of the knife, skin, superficial fascia, and fat. Generally one or two small vessels require torsion or the application of pressure forceps for a short time. I then define the ring thoroughly, and, after finding the fibers of the round ligament, I follow them up until it becomes a strong, round cord, upon which I fix pressure forceps. The operation is then repeated on the opposite side till the same stage is reached. An assistant now passes his finger into the vagina and presses the os uteri backward, whilst I gently, but firmly, pull up both ligaments until the fundus can be distinctly felt in its normal condition through the parietes. The os will then be found directed slightly backward. In most cases I pull out each ligament from two and one-half to four inches and then tie them together, passing a folded pad of gauze under them to keep them on the stretch. I then pass sutures of kangaroo tendon through the skin and ligament, and also around the latter, and bring the edges of the incision closely together. A drainage-tube is passed under the ligament and brought out at the lower end of the incision."

He lays particular stress on the fact that the uterus ought to be lifted by drawing on the ligaments, and that it must also be freely movable. After the lapse of three weeks the patient

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is allowed to get up — before which, however, a light, well-fitting pessary is introduced. After six weeks or two months the pessary may be removed. According to Dr. Gardner, the results of this operation have been highly satisfactory, many of his patients having been transformed from a state of chronic invalidism to perfect health.

It is but right to mention that there are certain dangers and difficulties connected with the operation. These have been delineated in the recent paper of Dr. W. M. Polk before the Practitioners' Society of the city of New York. There is danger, according to him, of sloughing of the wound, followed by peritonitis; also danger of separation of the tube from its new attachment, the uterus dropping back and dragging the tube with it into the peritoneal cavity. The difficulties of the operation, Dr. Polk also says, are simply those of dissection. He prefers to stitch the ligament to the upper surface of the pubic bone, and would also stuff the vagina with cotton to hold the uterus up as far as possible. He also claims that, though the operation has been performed fifty times, the results have left its value still unsettled.

The question of removal of the uterus for malignant disease involving its cervix and body, has given rise to many discussions — some prominent gynecologists and surgeons ranging themselves in favor, others against the operation. The removal by abdominal incision is credited with a direct mortality of 79 per cent; that by the vagina, 30 per cent. I will not discuss either point. I call attention to the matter for the purpose of throwing in my mite in favor of the Marion Sims operation, or, rather, that as recently modified by Dr. Van de Warker, of Syracuse. It consists in dividing the cervix high up, in such a way as to leave a cup-shaped cavity, then clipping off and gouging out of all suspiciously affected parts of the supra-vaginal portion of the cervix and of the interior of the uterus; then wads of cotton, soaked in Monsel's solution, are packed into the cavity, and these in two days are removed, the cavity mopped and cleaned out and filled with cotton wads

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soaked in solution of chloride of zinc. After two or three days these wads are in turn removed, and in the course of a few more days a large slough separates, leaving a clean, velvety wound to heal up. This operation of itself will, I believe, in the great majority of such cases, remedy the condition just as effectually as hysterectomy. Moreover, I remember that, a quarter of a century ago, Professor Simpson, of Edinburgh, used to tell us that he was taught by a study of so-called cancer-curers (charlatans they were, but nevertheless he thought he learned from them) that lesions of a malignant character were apt to be eradicated more effectually and more permanently after the use of caustics than the knife. Be that as it may, personally I am well satisfied with the thoroughness of the procedure in the single case in which I have had an opportunity to test it.

In the *New York Medical Record* of January 3d, the great laparotomist, Mr. Lawson Tait, recounts, in a concise and most interesting paper, his results in a series of one thousand cases of abdominal section, to some portions of which I would direct your attention. His favorite anæsthetic is two parts of ether to one of chloroform, given by means of a Clover apparatus. He has never had any accidents from chloroform; indeed, I believe he would actually prefer it to any other anæsthetic, except that the fear of using it is somewhat contagious. Ether, he considers, has special risks for those with a tendency to bronchitis, and is also particularly dangerous for persons with damaged kidneys. His series includes all cases involving the peritoneum, and the general death-rate is 93 in the 1,000 — a rate which really seems very low, but for which he almost apologizes. He promises, if he lives to do another such series, that the mortality will be considerably lower. His reason for such an expectation is, that "in this branch of our art, more, I think, than in any other in the whole field of surgery, does the personal experience of the operator, gained by failures and hair-breadth escapes, serve him in good stead for his subsequent work." Besides, the discontinuance of the clamp in

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ovariotomy and the ligature in hysterectomy, and the earlier period of operation that now obtains, are all in favor of a less mortality. His remarks on exploratory incisions I will quote entire, for they are well worthy of our most earnest consideration: "The first group of cases of which I have to speak is formed of ninety-four exploratory incisions, made for the purpose of ascertaining exactly the state of matters inside the abdomen and settling any doubt as to the diagnosis and prognosis in each case. . . . As I have said many times before, so I again say now, I make exploratory incisions to be sure that I am not wrong, where formerly I used to make them only to find that I was entirely mistaken. They serve the purpose of complete tapping, and, as the patients almost uniformly recover, they do no harm at all. . . . In nearly fifty of the cases the exploration has amounted merely to a tapping. Occasionally it was followed by a drainage, and in some of these cases results of the most marvelous kind have completely justified the practice. In four cases I have explored the abdomen to see if I could remove the spleen, and in two of these the enlargement of the organ has completely disappeared, and the patients have now perfect health. In one case, resident in London, I opened the abdomen and found a large tumor of the liver, which seemed to be certainly malignant. The ascitic effusion has not occurred again, and the tumor now, nearly a year after the operation, is certainly less than half its original size, and the patient is rapidly getting well. In five cases, where there was a large effusion due to papilloma, mere exploration has completely cured the patient, a singular fact that I have already drawn attention to. It is perfectly impossible to understand this, just as it is impossible to understand how papilloma, in two cases presenting in every detail identically the same characters, is a curable disease in one and a rapidly malignant disease in the other. But of this there can be no doubt now, for my original observation has been fully confirmed by M. Albon Doran. Several cases have also been published where pelvic pain has been re-

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lieved in a most inexplicable way by mere exploration. The great advantage, however, of the extended application of abdominal section is most apparent in other groups, where tumors have been removed, and diseases cured, under circumstances apparently hopeless, and when the operation was begun under the belief that nothing satisfactory could be accomplished."

The paper is altogether interesting and unique, but beyond these points there is nothing specially new. We will now conclude with the reading of part of a private letter which we received from Mr. Tait a couple of weeks ago:

"I do not know that I can say much that will be new to you in the matter of improvements, as I have published almost everything up to date; but certainly I derive a very large amount of satisfaction from hearing such comforting assurances as those by yourself that my work is appreciated and confirmed by the great body of the profession in America. I still go on operating on a larger number of cases of all kinds with a success which, I am pleased to say, is continuously on the increase, with the exception of one point — the removal of uterine tumors — in which every kind of ingenuity seems, as yet, to be baffled in securing results which I am positive, some day or other, we shall reach, though so far the door seems difficult to open. Certainly we cannot be content with a mortality so high as twenty-five per cent — and that is what is still maintained. This sort of thing was regarded, as you know, by Mr. Spencer Wells, for twenty years, as a satisfactory outcome of ovariotomies, but discontent led to our present success of three or four per cent; and equally discontented we must be with the result of hysterectomy until it reaches something more reasonable. With all the ingenuity which characterizes the people of the New Continent, I think we may with confidence look forward to assistance from them in the solution of this most important question."

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SECTION ON OPHTHALMOLOGY AND OTOLOGY.

XXXI.

REPORT OF COMMITTEE ON OPHTHALMOLOGY AND OTOLOGY.

By E. H. Hazen, M. D., *Davenport.*

In fulfilling the requirements of the recent change in our constitution, your chairman of the committee has found a vast amount of literature from the labors of those particularly interested in these specialties. The impetus given in the last twenty-five years to these specialties, by those yet living, and by some well known who have died (but who, if yet alive, would not be beyond the allotted time of man), has seemed to culminate in a vast amount of writings on these subjects, and shows an activity of thought that far exceeds any other like period. It will require no little labor to put into this report, of the recent advancement in these subjects, such matter as is adapted to this body of busy practitioners, and I shall endeavor to be concise, and yet comprehensive. I shall, then, exclude all anomalous discoveries and most of doubtful experiments, and try to cull from the great mass such information as will be of practical use to the general practitioner.

Four new text-books of American birth, and several reprints, treating of the eye, have of late been put forth, viz.:

1. A Treatise on Diseases of the Eye. By Henry D. Noyes, A.M., M.D. New York: William Wood & Co. Library. 1881. Pp. 360. Set, $12.

2. The Diagnosis and Treatment of the Diseases of the Eye. By Henry W. Williams, A.M., M.D. Boston: Houghton, Mifflin & Co. 1881. Pp. 464. $4.00.

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3. A Manual of Ophthalmic Practice. By Henry S. Schell, M.D. Philadelphia: D. G. Brinton. 1881. Pp. 263. $2.00.

4. A Manual of Diseases of the Eye and Ear. By W. F. Mittendorf, M.D. New York: G. P. Putnam's Sons. 1882. Pp. 432. $4.00.

5. C. S. Fenner, before his death, revised his book on "Vision and its Defects." Elementary in its character. Philadelphia: P. Blackiston & Co. 1883.

6. Diseases and Injuries of the Eye. By J. R. Wolfe, M.D., of Glasgow. Philadelphia: P. Blackiston. 1882. Pp. 452. $7.00.

7. A Manual and Atlas of Medical Ophthalmoscopy. By J. R. Wolfe, M.D. Second edition. Philadelphia: P. Blackiston. 1882. Pp. 384. $6.00.

Another, of English parentage, but fostered by a prominent ophthalmologist of this country, is the "Students' Guide to Diseases of the Eye," by Edward Nettleship, F.R.C.S., with a chapter on examination for color perception by William Thompson, M.D. Philadelphia: Henry C. Lea's Sons & Co. 1883.

One of the preceding (Mittendorf) includes in its title-page the subject of otology.

Dr. Adam Politzer, of air-bag fame, sends us a voluminous work on the ear — "A Text-book of the Diseases of the Ear." Translated and edited by James P. Cassells, M.D. Philadelphia: Henry C. Lea's Sons. 1883. Pp. 809. $5.50. It is a text-book that would seem exhaustive enough to silence the present generation on book-making on this topic.

Buck's book on the ear (in green back), in that annual armful of stove-wood split up to convenient size, should not be forgotten.

From present indications, there will be as many more in our list of new works in two or three years hence.

Most interesting to the specialist is the appearance of monographs on special diseases, of which two have lately appeared, viz.:

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The Sympathetic Diseases of the Eye. By Ludwig Mauthner, M.D. Translated by Warren Webster, M.D., and James A. Spaulding, M.D. New York: William Wood & Co.

Lectures on the Human Eye in its Normal and Pathological Conditions. By Adolph Alt, M.D. New York: G. P. Putnam's Sons. 1880.

These text-books, monographs, and the special journals, ably edited, are sufficient to keep those devoted exclusively to these subjects busy masticating and assimilating these productions.

First we will notice some of the investigations in ophthalmology that have relation to constitutional diseases.

Buller (Arch. Ophth., Vol. X.) has noticed complete loss of vision from large doses of quinine, with recovery, but with some loss of perception of colors and an atrophic condition of the optic nerve. Treated with nitrite of amyl.

Knapp (Arch. Ophth., Vol. X.) reports a case of quinine amaurosis. Hobby, of our own State, reports (Arch. Ophth., Vol. XI.) another case, with partial recovery upon treatment with strychnine.

Herchberg reports a case of amblyopia from use of iodoform in a case of re-section of the hip-joint.

The findings of the ophthalmoscope in the hands of experts may not be uninteresting.

Hughlings Jackson is still active in his studies of the relation between optic neuritis and intracranial disease, having contributed an elaborate paper (Trans. Ophth. Soc. United Kingdom, Vol. I., 1881), based on the examination of a large number of cases. Pierd Houy, of Milan, peered into the eyes of nine hundred lunatics with the same object. Leber (Inter. Med. Cong., London, August, 1881) has done something in that line.

Mauthner defines the indications between choked disk and neuro-retinitis. Retinitis albuminuriæ and retinitis due to lead poisoning never present the appearance of true choked

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disk, so that when the latter is observed an affection of the brain must be assumed.

Hutchinson (Ophth. Review, Vol. I., 1881) reports his observations in regard to the influence of consanguinity upon the development of retinitis pigmentosa. Consanguinity, he thinks, is undoubtedly an important factor in the development of this disease, as it is for deaf-mutism and idiocy. Macheck is working in the same line as Hutchinson, and adds statistics.

Litten investigates the relation of diseases of the liver to retinal affections.

Landesberg (Med. Bull., Vol. XI.) has an article on the eye and sexual excess.

Cohn (Arch. Ophth., Vol. XI., 4) gives the ocular affections in masturbation.

W. S. Little (Phil. Med. Times, June, 1881) notices symptoms (reflex) in and about the eye due to some affections of the uterus or its appendages, such symptoms disappearing on removing the uterine trouble.

Mooren declares that there is no part of the eye which, either from a physiological or pathological point of view, is beyond the influence of the uterine system. The reflex theory is accepted as explanation.

Possadsky, of St. Petersburg, looks on the retina, in all inflammatory diseases, for some changes there, as industriously as the urine doctor examines the secretions of the kidneys.

Henry Eales, Birmingham (Ophth. Review, Vol. I.), finds hemorrhage on the periphery of the retina of young men, and consequent vitreous opacity, without retinitis, but leaving whitish and sometimes glistening patches; exciting cause being strain in coughing, laughing, or over-exertion—all subject to epistaxis and suffering from constipation. He is inclined to attribute it to a neurosis affecting the general system remotely from the eye and requiring general hygienic measures. He has not met the like in females, and suggests that possibly the menstrual function acts as a safeguard.

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Rieger and V. Foster are on the same line of investigation as Hughlings Jackson and Allbutt, establishing a connection between the brain, optic nerve, and spinal cord, and noting manifest changes in the first in diseases of the latter.

Zaufal treats upon the value of the ophthalmoscopic examination of the eye for diagnosis and prognosis in diseases of the ear. Almost all cases of otitis media, with or without caries, which lead to meningitis and thrombosis of the sinus, are complicated with affections of the fundus of the eye.

Kummell has experimented on stretching the optic nerve in seven cases, with no result.

Abadie has operated eight times with galvanic cautery puncture in cases of detachment of retina. He thus produces artificial chorio-retinitis to a slight extent. In six cases there was an amelioration for a few weeks, but detachment recurred. The exhibition of pilocarpin hypodermically, advocated with such enthusiasm in this trouble, is now found to be efficacious in only a minority of cases.

Interesting on the subject of color-blindness is Brailey's examination of 18,088 cases by Holmgren's test (Rep. of Com. in Rep. Br. Ophth. Soc.) After abstracting a few Jewesses, who were found to have 3.1 per cent, and Quakers, with 5.5 per cent of color-blindness, he found the mass of mankind to have 3.5 per cent, womankind 0.4 per cent. De Fontinay examined 2,737 men, of whom 3 per cent were color-blind, and 502 women, 0.6 per cent being color-blind. Pontappedin examined the color sense of the Hawaiians and found it well developed, not finding a single person color-blind.

Jager recommends the method of Magnus for the cultivation of the color sense. It is the same as adopted by the Froebel school (kindergarten).

Kolbe thinks that the Holmgren method of testing the color sense should not be used exclusive of others, as it has not proved trustworthy in the hands of all observers. It should be used in connection with Stelling's method. For the quantitive determination of the color sense, Kolbe recommends

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Weber's tablets as the best we have for this purpose, all things considered.

When we meet with a color-blind person, we are at a loss for language for a description of his situation — and we have no interpreter — so give it up and stare at him.

Holmgren (Proc. Royal Soc., Vol. XXXI.) has undertaken the answer to the question, How do the color-blind see the different colors? He has been fortunate enough to find two cases who have one eye color-blind and one normal.

Jeffries says the expression of the color-blind is restless, anxious, aimless, etc.

Steffan holds that there is in the central nervous organs a special center for the color sense, which is a double one, corresponding to the double center for the sense of space in the gray cortex of both occipital lobes. The theory strengthens the view of authors that the cause of congenital blindness lies in the brain.

Ulrich, recognizing the cause of convergent squint to be great strain upon the accommodation, proposes to ease this condition by instillation of eserine and the occasional use of glasses. By this means the strain is eased, and the excessive strain on the internal recti also ceases. As long as an organic change has not taken place in the muscles, success can be expected.

It has been suggested (Forster) that absolute alcohol be used to disinfect instruments before operating, instead of carbolic acid, as suggested by others; the acid dulls the edges.

Kromer gives the following formula for antiseptic solution of atropia: Boil solution; add boracic acid 4:100, carbolic acid 1:1000. This keeps them clear and free from the development of bacteria.

The addition to our ocular therapeutics of a number of mid-riatics and myotics, of late years, has added much to our armament. Risley (Am. Jour. Med. Soc., April, 1880, and January, 1881) and Oliver (Am. Jour. Med. Soc., July, 1881, and July, 1882) have investigated the comparative merits of sulphate of

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atropia, sulphate of duboisia, hydrobromate of homatropine, sulphate of daturia, and the sulphate of hyoscyamia. They both agree in giving the palm to homatropine over all others for the purpose of paralyzing the accommodation, to fit glasses. As there are seldom any constitutional effects produced, and as the effects last a much shorter time than any other, it is admirable for this purpose. The effect upon the organ of vision is harmless, and it can be used with safety.

The following table, gathered from Oliver's statements in regard to the effects of four of the drugs which have been employed for mydriasis and paresis, will convey at a glance a ready understanding of the points:

	Mydriasis.				Ciliary Paresis.				Accommodation	
Single Instillation	Accomplish.		Maintained.		Attained.		Maintained.		Returned.	
Dose — Grains.	$\frac{1}{40}$	$\frac{1}{20}$	$\frac{1}{40}$	$\frac{1}{20}$	$\frac{1}{40}$	$\frac{1}{20}$	$\frac{1}{40}$	$\frac{1}{20}$	$\frac{1}{40}$	$\frac{1}{20}$
Atropia.....	22 m.	*Full.* 18 m.	10 to	14 ds.	46 m.	38 m.	Many	hours.	10 to	14 ds.
Homatropine.....	*Not full.* 30 m.	34 m.	30 hrs.	50 hrs.	60 m.	32 m.	2to4 m	2to4 m	14 hrs.	24 hrs.

If, at the time of utmost action of 1-20 of a grain of homatropine on the ciliary muscle, 1-60 of a grain was instilled, complete paralysis of the muscle was established in fifty-four minutes, which would remain for thirty minutes.

Daturia Sulphate.	Produced full dilatation. 16 to 18 mins.	12 m.	24 to 36 hrs.	36 m.	26 m.	24 to 36 hrs.	9 to 10 days.	10 ds.
Hyoscymia	8to10 m	8 m.	36 to 48 hrs.	30 m.	20 m.	36 to 48 hrs.	10 ds.	12 ds.

Dr. Risley, in his investigation of the effects of duboisine, finds it effective in dilatation of the pupil and controlling the accommodation, but the systemic effects are unpleasant. Cases have been reported (Theobold, Maryland Med. Jour., Vol. VIII.; Worrell, Am. Ophth. Soc., 1881) where alarming symptoms were produced.

Andrews (Lancet) recommends eserine in sympathetic inflammation of the eye. Than employs it in abscesses of the cornea, purulent ulcerations, and serpent ulcers. Pfluger, as heretofore claimed, says atrophine reduces the intraocular tension, and eserine increases it, and also the continuous cur-

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rent (Inter. Ophth. Cong., 1882). Morano recommends long use of eserine before abscision of staphyloma.

Kaudirz says pilocarpin is a speedily acting and sure antidote of atropine. Barde uses it in iritis and chronic choroiditis. Pilocarpin is recommended by several authors in all affections where myosis is required, and in many cases of keratitis where the iris is not involved in the inflammation. Seely recommends the incorporation of atropia with astringents or yellow oxide of mercury for preventing the irritating effects which the former sometimes produces. (Cincinnati Lancet, March 26, 1881.)

Burnham (London Royal Ophth. Hosp. Rep., Vol. X.) uses carbolic acid — 1-20 applied to everted lids — in gonorrhœal ophthalmia, using it night and day. It gives the patient but little discomfort, is markedly astringent, as well as antiseptic, and appears to act most beneficially on corneal ulcer, especially on those threatening to perforate.

The Boro glyceride treatment of purulent ophthalmia is worthy of notice. (*Vide* News, March 17, 1883.) Galezowski uses oleum cadnicum — 2 to 10 of vaseline — with good results in all cases of purulent ophthalmia. Shaffer uses iodide of sodium internally, zinc collyria, calomel, and yellow ointment externally, and advises such patients to remain in a cold room.

Among the remedies for purulent conjunctivitis, nitrate of silver holds first rank as yet — 2 to 4 per cent solution.

Dr. De Wecker, of Paris, has introduced a new remedy for the treatment of granular lids, or trachoma, and inveterate pannus — Jaquirity, or giquarity, a shrub of Brazil. He triturates the ends and makes a decoction of them. This, when applied to the conjunctival sac, sets up a purulent inflammation, which is easily controlled, and is not dangerous to the cornea.

Burnham's report (London Royal Ophth. Hosp. Rep., Vol. X.) of the three modes of treatment for keratitis with hypopyon in this hospital is of great value, viz.:

1. Eserine (2 grs. to 1 oz.) instilled four or five times a day, frequent bathing with decoction of poppies, leeches to

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temple if there is much pain, and two grains of quinine three times a day.

2. Saemisch's operation (which consists in carrying a knife through the cornea from side to side, and including the ulcer in the section) added to above.

3. Atropine drops three times a day, frequent bathing with belladonna fomentations, quinine internally.

The second, or operation combined with eserine, gave the most satisfactory results, in the opinion of Mr. Burnham. When the corneal infiltration was not great, the eserine treatment was sufficient. The third, or belladonna treatment, was pronounced a slow process.

Eserine is observed to produce a corneal luster, increasing the circulation in the part. When there is much photophobia, belladonna seems best. Carbolic acid (1–20) has been used in corneal infiltration with good effect.

The actual cautery (Simi) has been applied to corneal ulcers. A strabismus hook has been brought to a white heat and applied to some of those of long standing with good results.

OTOLOGY.

Constitutional remedies in the treatment of the diseases of the mucous membrane in aural surgery, since the time of Toynbee, have had few advocates when the trouble was not exhibited in a constitution of a decided dyscrasia. Sexton (Am. Jour. of Otol., January, 1879, and later, in a paper before the New York Academy of Medicine) has now revived the treatment by the use of calcium sulphides in furuncles of the external auditory canal and in acute suppurative inflammations of the middle ear, and even when the inflammation has extended into the mastoid cells. He claims that when this preparation is exhibited, early perforation of the drum-head seldom occurs. Theobold (Med. News, Feb. 4, 1882) prescribes mercury preparations, as Toynbee used to do.

Laryngology and its kindred branch have brought prominently to the front the necessity of attention to adenoid

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growths in the posterior nasal cavity. Barr (Br. Med. Jour., Sept. 3, 1881) and others advocate digital examination of the posterior nares, claiming that the condition of the upper space cannot be judged by the examination of the lower pharynx, and that rhinoscopy does not show the whole cavity. The nasal cavity is receiving the attention of scientific workers, and the methods and modes of treatment vary very much; but it is gradually becoming a conviction that the diseases of this cavity are as amenable to successful treatment as others. And it is also becoming understood that the severe caustic and rough surgical treatment is not more advisable than to the mucous membrane of the eye — that a persistent and regular siege is the way to conquer nasal catarrh and its consequences.

Frankel has employed iodoform in diseases of the nasal cavity, particularly in the form of powder insufflation. He combines it with boracic acid and tannin. A salve of iodoform and vaseline is a favorite method. He claims that the fatty substances decompose the iodoform, and there is a constant action of iodine *in situ*, and absorbed iodide of albumen is formed. It is especially adapted in syphilitic, scrofulous, and tuberculous conditions.

A large percentage of ear diseases being of a purulent condition of the middle ear, this disease has received its usual attention in the therapeutics of otology. Benzoic acid, first recommended by Bizold, is used extensively, dry and in solution. Sexton (N. Y. Med. Rec., Jan. 31, 1882) combines it with calendula, used dry. Absolute alcohol is used by some. Resorcine, a preparation of coal-tar, is recommended by E. de Rossi for its energetic bacteria poisons. Bennett (Am. Jour. Otol., April, 1882) recommends salicylate of chinoline, one-fifth of one per cent solution. This is also an active bacteria poison.

Upon the *persistent* cases of purulent otitis media comes the strongest discussion. Barr (Br. Med. Jour., Sept. 3, 1881; Glasgow Med. Jour., May, 1882) finds the products of inflammatory disease in the upper portion of the tympanum and

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in the antrum mastodies. There is much ingenuity displayed in devices for perfectly cleansing these parts. Blake's middle ear syringe is the most perfect instrument for this purpose. With this instrument the parts can be well cleansed and the remedies shot in with rifle precision.

The greatest difference of opinion exists in regard to the use of water and syringe and dry cotton on a holder for cleansing a discharging ear. Buck says (Wood's Library, 1880, p. 232) "The syringe, as a rule, is not to be used," but advocates cleansing with absorbent cotton, while Knapp, Politzer, and others say that thorough cleansing cannot be effected without water, and advocate both the syringe and cotton. Some use cotton wicking for drainage. Pomeroy puts a rubber tube in a constricted meatus (Am. Jour. Otol., 1882). The "dry treatment" (Todd, Trans. Mo. St. Med. Asso., 1880; Spencer, Am. Jour. Otol., July, 1880)—viz., insufflation of dry powders—is extolled. Spencer adds to this dry treatment the packing of powders with antiseptic cotton, and attributes additional advantages from compression. This treatment he gives the name of "mechanical treatment."

Polypi are removed, some with forceps (Knapp, Arch. Otol., 1882, p. 223), others always by snare. Blake's improved snare has all the advantages of others, besides many improvements. The method of attaching the wires gives a cutting motion to the wire and gives great advantages in toughened tissue.

Lowenberg, in his paper on coco-bacteria in purulent otorrhœa, claims that, as these discharges are exposed to those influences which favor decomposition and contain these microscopical infusoria, a thorough cleansing can be done only by use of fluids, and in some cases propelled by considerable force. Then, by Bizold's method, an effectual check to the migration and colonization of these micro organisms can be effected. It is not many years since Hinton, of London, advocated the use of the syringe, not only in the ordinary way, but placing the instrument tightly in the meatus and using suffi-

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cient force to propel its contents through the eustachian tube. This method has not been generally adopted in this country.

Gentlemen, in this brief and imperfect summary of what has been done in ophthalmology and otology of recent date, I have considered it my duty to be practical and avoid the discussion of controverted questions, which would probably only be of interest to specialists. I have also purposely omitted my own experience and opinions. If I have erred in the comprehension of my duty and the judgment of what you expected of me, I shall accept your reproof and ask for more explicit instructions, should I ever be appointed again to this position.

XXXII.

CONVERGENT STRABISMUS.

By C. M. Hobby, M.D., *Iowa City.*

It is not the purpose of this paper to enter into a description of the causes and methods of development of strabismus. The classical works of Donders, Stellwag, and De Wecker contain all that is of value in the literature of the subject; and we know, in brief, in regard to its existence, in any case:

1. That it may or may not be due to paralysis.

2. That where not due to paralysis, there exists an association between *Strabismus convergens* and hypermetropia in a large percentage of cases. In 172 cases, Donders found hypermetropia present in the undeviated eye 133 times, or about 77 per cent. From an examination of as great a number of cases, the writer would confirm Donders' opinion that more careful observation would show its presence in a still larger proportion of cases.

3. That hypermetropia, uncomplicated, is rarely the cause of strabismus, but that in nearly all cases of convergent strabismus hypermetropia is associated with some other disturb-

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ance of vision, rendering equally acute vision impossible for both eyes at the same time.

In reference to clinical history the following facts may be noted:

1. Non-paralytic strabismus is rarely or never congenital. From the lack of coördination of the muscles in early infancy, parents often think their children squint when they do not, and if afterward strabismus appears, they will believe it to have existed from birth. Strabismus from hypermetropia may begin to show itself at any time after the child is old enough to "fix" objects. In the majority of cases it will have appeared by the age of five, and will seldom or never develop after seven.

2. Paralytic strabismus may occur at any time of life.

3. Hypermetropia is, to a considerable extent, hereditary, and it would be expected that certain families would show a tendency to the occurrence of strabismus, and such is the fact.

The pathological conditions existing in and connected with strabismus are numerous, and a consideration of them in each particular case is essential to rational efforts for relief.

First. Vision.—As heretofore indicated, we find hypermetropia present in a very large proportion of cases of *S. convergens* and myopia in *S. divergens.* In addition, we find in nearly all non-paralytic cases that there exist other defects of vision in one or both eyes, whereby the acuteness of vision of one eye is greater than that of the other, and hence, in examination, we have to separate inherent difference of acuteness of vision from loss of function resulting from non-use.

A common form of defective vision is hypermetropia of one eye and hypermetropic astigmatism of the other; but besides this there may exist any other possible error of refraction in the unused eye, or any form of amblyopia from failure of perfect development or from disease.

A curious fact which may have a bearing upon the causation of strabismus is this: in persons of normal acuteness of vision, the loss of the vision of one eye is usually followed by

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divergent strabismus. Divergence is common under anæsthesia. It occurs after death occasionally. On the other hand, cases of blindness from congenital cataract sometimes present perfect parallelism of the optic axes.

The function of binocular vision is lost or in abeyance in about ninety per cent of cases of non-paralytic convergent squint. This loss is probably acquired. The individual, learning to ignore the less distinct image, and directing his whole attention to the one sharpest cut upon the retina, loses, eventually, all appreciation of the other, except when his best eye is covered. In this way the double vision, that otherwise would annoy, is suppressed. Even in cases where the disturbance of vision is slight, and where the eyes separately show nearly normal acuteness of vision, trouble from diplopia is seldom experienced; one eye can be used at a time, but the will fails to utilize both. In paralytic cases, binocular vision, or rather the capacity for it, is always, or nearly always, present, and is a source of annoyance.

Second. Muscles.—In the earlier years of *S. convergens* the internal rectus becomes hypertrophied; but later on, according to Stellwag, "it becomes tendinous, and, losing its muscular tissue, contracts into a tendinous string." He further states that its antagonist "loses in thickness and breadth, and finally actually atrophies. It is certain that the internal muscles increase in power, in the early history of these cases, at the expense of the others, and this weakening of the external muscles is one of the obstacles to successful management of these cases.

For purposes of consideration, strabismus may be divided into four classes: *A*, intermittent squint, where the disorder is transient, and apparently occurs only after fatigue, excitement, or the use of the eyes at a short distance; *B*, where the squint exists all the time, but where the patient can voluntarily fix objects with either eye, even though a strong preference be shown for the use of a single eye; *C*, where the squint exists all the time, but where the patient always fixes with the same eye; *D*, paralytic or fixed squint.

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It is more especially to point out the limits and methods of relief that this paper is prepared; and it will be sufficient for the history of attempts at relief to say that they were instituted by a charlatan, adopted by the profession, and afterward, to a considerable extent, fell into disuse and disrepute, on account of the uncertainties of results and the frequently disastrous consequences of operative procedures. The operation is again in danger of falling into disrepute, from a lack of thorough knowledge, on the part of the profession at large, of the pathological conditions and of the necessary limits of ultimately safe operative efforts. Medical men of ability and experience send cases of strabismus to the ophthalmic surgeon for operation, and inform the patient that the operation is a very simple one, and that after the operation no special attendance will be required, when, as a matter of fact, in the majority of cases a patient, after a strabismus operation, is about as likely to secure good results without careful after-management as a patient with a fractured thigh, after an attempt at reduction, left to shift for himself, without any retentive apparatus. It is to be remembered that, in the very large majority of cases of strabismus, any operative interference is for purely cosmetic purposes, and that binocular vision cannot be established in more than twenty per cent of cases — and it may well be doubted if so large a proportion as this have what may be properly called binocular vision after the most perfect operation.

The limitations of operative efforts can be classified into, *first*, those of the relations of parts in the orbits; *second*, those of coördinative power; *third*, those pertaining to function.

First. The globe is held in position by fasciæ and muscles, and the severance of the tendon or muscles and fasciæ by operative procedure does not, and can not, fail to be accompanied by a change in the position the globe occupies in the orbit and a greater or less protrusion of the globe. Again, section, whether of muscle or tendon, necessarily limits the amount of movement of globe.

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Second. Limitations of co-ordination.—The full discussion of this would require a consideration of the subject of the identical points of the retina. It will be sufficient to call attention to the fact that even those with perfect binocular vision and control of the eyes require the exercise of the will to keep both eyes fixed on a given point, or, in other words, that in ordinary vision a normal strabismus must be overcome to secure binocular vision. Now, lacking the incentive of binocular vision, there is no possible way of maintaining exact parallelism, and the optic axes will necessarily make excursions.

Third. Limitations pertaining to functions.—It is not difficult to correct the errors of refraction of a single eye, and to bring it to its maximum of performance; but we have to deal frequently not only with errors of refraction, but amblyopia as well, and the amblyopia may be either congenital or acquired from disease, and possibly, in addition to these two forms, there may exist another, due to flexure or straining of the optic nerve. But the most annoying of all limitations of function exists in those cases in which the acuteness of vision can be brought to the normal standard in each eye and the patient persists in using but one at a time.

The measures for relief of strabismus are naturally divided into those which have for their object the removal of the causes producing and those that aim at relief of the effects. The first is to be accomplished by the correction of the visual disturbances and the restoration of harmony between the visual effort and the muscles of the eye, and the second at a weakening of a too strong or a strengthening of a too weak muscle. In practice, with the exception of a single class of cases, to be described hereafter, the combination of both of these measures is essential to the best result. The thorough measurement of the refraction of the eye and the adjustment of the proper glasses are the first steps in the management of strabismus, and are essential to maintain the success of any operation. *Unless the cause originally producing strabismus be removed or kept in abeyance, operative measures will not furnish more than an approximation to the relief of deformity.*

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In class A (intermittent squint) correction of refraction, either with or without the prolonged paralysis of the muscles of accommodation by atropia, or other mydriatic, will frequently overcome the deformity; and this is especially true in those cases where the squinting eye possesses a fair amount of vision. In such cases glasses may be adapted at as early an age as four years with the best of results. Of course, in such extremely youthful cases the fitting of glasses must be by use of the ophthalmoscope.

In class B cases will occasionally be found in which the strabismus disappears after the thorough employment of the mydriatic. In such cases it is worth while to try the effects of correction of refraction and the prolonged use of atropia.

All attempts to remove strabismus of class C without operation have heretofore proven vain. In paralytic squint the cause of paralysis may be removed in some cases by treatment, and in others, perhaps, the muscles can be strengthened by the use of remedies, training, and electricity, but, as a rule, operative interference will be required in the last three classes.

Operations for the relief of strabismus were described as early as 1754, by Eschenbach, but were probably first put in practice by Taylor, an English charlatan, many years later. Around his operation much mystery is thrown, but it probably consisted in section of the muscle — the operation which held sway for many years — the professional belief at that time being that the gap left after such section was filled with intermediary substance, thus, in effect, elongating the muscle. This operation was practiced generally until recent times, Graefe being probably the first to utilize the researches of Bonnet, and thus place the operation upon an anatomical basis. The relations existing between the attachment of the tendons of the recti muscles to the capsule of Tenon and to the sclerotic coat form the foundation of the modern operation of strabismus. The old operation yielded apparently good immediate results, and is probably the operation most employed at the present day by itinerants, and by those desirous

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of immediate apparent success and ignorant or careless of future results. In the majority of myotomies the muscle is crippled and eventually deprived of function. Cases operated upon by this method are still frequently to be seen where the convergence has been converted into an almost motionless divergence. This divergence does not show itself, usually, for several years after the operation, but it then becomes fixed, and, from the atrophy of the cut muscle, hopeless.

The operative procedures at present employed are:

A. Section of the tendon.

1st. By the sub-conjunctival method, so called, or, what would be a better term, by the horizontal incision.

2d. By the vertical incision.

3d. By the oblique incision.

In all of these the incision into the conjunctiva is made as small as the tact and experience of the operator will allow, and must be large enough to admit of the use of small scissors.

In the sub-conjunctival or horizontal section of the internal rectus the incision is made at the lower border of the rectus, and a good guide for this is to seize in the forceps a vertical fold of the conjunctiva, just inside of the vertical corneal tangent, and to snip with the scissors in the horizontal tangent to the inferior border; through this opening let the hook be passed and the conjunctiva separated from the sub-conjunctiva tissue over the tendon for the space of four or five millimeters; then let the capsule of Tenon be cut through, the hook passed beneath the muscle, with its point down, and a reversal of the point upward, if carefully done, will then engage the tendon, when, with successive snips of the scissors, it can be detached from its insertion, and the effect may be increased by extension of the sub-conjunctival section into the capsule above and below. In the vertical incision a horizontal fold of the conjunctiva is lifted by the forceps and the incision by the scissors made about seven millimeters from the corneal margin, parallel to the vertical tangent of the cornea; then the same process as described before may be adopted, or the hook made to split the tendon and half be cut at a time.

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In the oblique incision the same methods are employed. If the incision be over six or seven millimeters in length, a conjunctival suture may be employed; and this is especially necessary in the vertical or oblique incision, in order to prevent deformity from depression of the caruncle or occurrence of granulations.

Unless the deviation be very small — less than three millimeters — it is best to operate on both eyes. Experienced operators may do so at once, but, unless the operator is very familiar with such cases, the effect of a single operation should be determined before making the second section; and this is especially true if the operation be made under anæsthesia.

B. The other recourse is shortening of the tendon of the elongated muscle. This operation is difficult to describe without plates, but consists essentially in detaching the conjunctiva from the corneal margin, seizing the tendon with a clamp-hook, separating it from its attachment, transfixing it with the middle one of three needles on the same thread, then carrying the others under the conjunctiva, the one above and the other below the cornea, and bringing them out through the conjunctiva, thus securing two sutures; then, shortening tendon and conjunctiva by a single cut with the scissors, tighten the sutures so as to secure an anterior attachment of the shortened tendon.

By the first method we have the following difficulties to contend with:

1st. Too little effect.

2d. Good effect at the time, followed by divergence.

3d. Increased prominence of the eye.

And it may be said that in the majority of cases where binocular vision is impossible accuracy of effect cannot be obtained, and a small amount of convergence is preferable to any divergence. Again, it must be remembered that in hypermetropia the axis of the cornea usually makes a considerable angle with the visual line, and apparent convergence may exist with perfect parallelism of visual function. This angle may be as great as eighteen degrees (Wecker).

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When too little effect is gained by operation, and if the patient is old enough to endure the operation without an anæsthetic (this can be ascertained at the time), the effect may be increased by a wide separation of tissues, or by passing a suture through a fold of conjunctiva externally, thus shortening it, or by passing a suture through the conjunctiva and then through the integument externally, thus using a "stay rope" to hold the axis outward until the tendon has become attached farther back.

Besides these measures, the prolonged use of atropia to lay aside the accommodation, the persistent use or exercise of the insufficient muscle, and the accurate correction of refractive errors, will increase the effect. In those cases (and they largely predominate) in which hypermetropia is an effective factor, the tendency toward diminution of squint with increasing years must be recognized and allowed for, especially in young children.

When a good effect at the time is followed by divergence, the undue weakening of the muscle can only be compensated for by advancement. Section of the opposing muscle would not only allow protrusion of the globe, but would diminish the motility of the eye. Increased prominence of the eye, to some degree, is inevitable after an effective operation of tenotomy; and this becomes noticeable in cases where, as sometimes happens, the palpebral fissure is unusually large. When the operation is divided between the two eyes, this prominence is not noticeable, because symmetrical, and when combined with large fissure can be neutralized by shortening the fissure.

The operation of shortening the elongated tendon is a difficult one, requiring much more skill and dexterity in the use of instruments, and a failure must of necessity aggravate the existing deformity. Uncombined with the other, it depresses the globe within the orbit — not so noticeable a deformity, however, as protrusion. This operation has certain advantages over the other: *1st*, it increases, rather than decreases, the motility of the globe; *2d*, it is in the line of the natural curve,

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viz., strengthening and shortening the elongated muscle; *3d*, it admits of more accurate adjustment or dosage; *4th*, it obviates the necessity of operating upon both eyes; *5th*, it is the only operation of any value in paralytic cases. The after-treatment of cases which have been operated upon is more important than the operation itself, for we desire to secure not only relief from deformity, but to maintain the relief and increased function.

Increased acuteness of vision after strabismus operations of all kinds is common. Frequently the increase in the defective eye is considerable. Some of the reasons for this have been previously indicated, and some are at present inexplicable. Many devices have been used for securing increased strength of the weakened muscle, such as the use of glasses blackened on one lateral half, compelling the patient to look in a certain direction constantly in order to see, thus securing adhesion with the wound of the tendon gaping as much as possible, and at the same time calling into use the opposing muscle; covering the eye ordinarily used, and compelling the patient to use the defective eye. But the means of most value is the persistent drill in turning the eye to its maximum extent outward. This drill for the first few weeks should take place frequently through the day, and should be kept up for five minutes at a time. Attempts should be made with prisms and colored glasses to get vision with both eyes conjointly, and the occurrence of diplopia should be hailed as a step toward perfection, and should be cultivated until the patient experiences the desire, and makes the effort, to coalesce the images and secure binocular vision.

To many it will seem that the writer has magnified the difficulties and the intricacy of the problem of strabismus; but in calling attention to the fact that this treatment consists in something more than simply cutting a tendon, and that success does not depend entirely upon how the tendon is cut and how much cutting is done, he believes that something may be accomplished toward removing from an operation opprobri-

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um justly gathered by neglect of the principles that underlie it.

The conclusions to be drawn from this consideration of the subject are:

1. That certain classes of cases may be curable without operation.

2. That perfect results are impossible unless binocular vision can be developed.

3. That strabismus may diminish in amount with advancing years.

4. That it is unsafe to approach complete correction in young children.

5. That adjustment of proper glasses and drill of muscles after operation are necessary to the best results in nearly all cases.

6. That in paralytic cases, in cases where strabismus is extreme, in those where binocular vision is improbable, and in those where objection is made to operation on both eyes, re-section and advancement of the tendon of the elongated muscle, with or without tenotomy of its opponent, is the proper operation.

7. That experience may show the advantage of the shortening of the elongated tendon in the majority of cases.

The writer also believes, although not at present prepared to assert, that it is best in children under, say, about eight years of age, to correct errors of refraction so far as it is possible, to give accommodation rest by the use of atropia, from time to time, and insist upon frequent drill of the deviating eye, in order to prevent unnecessary amblyopia and at the same time preserve muscular function, and defer operation until that age is passed.

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XXXIII.

OBSTRUCTIONS OF THE LACHRYMAL CANAL.

By F. E. Cruttenden, M. D., *Des Moines.*

Before presenting the subject-matter of this paper to the Society, I wish to frankly acknowledge that I have nothing in principle, and but little in detail, that is new or original, other than the manner in which I present the views that I hold upon this subject, endorsed by some and rejected in part by others. In order to establish the *rationale* of my views upon the treatment of obstructions of the lachrymal canal, it is necessary to recall some general anatomy, and to make a rough etiological classification of those agents that produce, through pathological changes, lachrymal obstructions. For data to carry out the above plan, I am indebted to the pages of Gray, Wecker, Wells, and Carter.

The lachrymal canal, a continuous passage between the eye and the nasal cavity for the purpose of carrying the tear from the eye, commences at the puncta, and is composed of upper and lower canaliculi, lachrymal sack, and nasal duct.

The puncta lachrymalia, the external openings of the lachrymal canal, are found on the margins of the lids, at the junction of the external and internal surfaces, and just opposite the internal extremities of the tarsi. These openings, often raised a little, like papillæ, are from one-third to one-half of a millimeter in diameter, and are formed of dense, fibrous, and connective tissue.

The canaliculi lead nearly vertically from the puncta one to two millimeters, and then turn nearly a right angle and run parallel with the margin of the lids and toward the nose, terminating in the lachrymal sack, a little below its apex, by double or common opening. Its diameter varies from one-half to two-thirds of a millimeter.

The lachrymal sack, lodged in the lachrymal groove, which is formed by the lachrymal and superior maxillary bones, is

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oblong, about four millimeters in diameter, and terminates in the nasal duct at the point where the bony walls completely surround the canal.

The nasal duct is from ten to fifteen millimeters in length, and is entirely enclosed within bony walls, lined with mucous membrane and connective tissue, continuous with that of the inferior meatus of the nose. Its diameter, exclusive of mucous membrane and connective tissue, is nearly four millimeters above, gradually tapering to two or three millimeters below, its shortest diameter. The general shape of the canal above is circular or oval, while below it is considerably flattened.

The important anatomical relations of the lachrymal canal are the mucous membranes of the eye and nose, by reason of their contiguity with the mucous membrane of the canal; the corrugator supercillii and orbicularis palpebrarum, from their compressive and tractive action on the lids, shutting and drawing them toward the inner corner of the eye; and the tensor tarsi and the tendo-oculi, which, by reason of their origin and direction, and their distribution along the sack and canaliculi to the puncta, compress the sack, and, when they contract, act like sphincters to the canaliculi, especially at the point near the termination of the canaliculi into the sack, where the fibers decussate. These relations should be borne in mind and the associated actions recalled, as they are an important element in modifying the results of treatment.

Diseases involving one or more parts of the tear apparatus are common to all classes and ages. The course of their treatment is usually protracted, and the results are often limited successes.

Proceeding analytically, and from a clinical standpoint as a basis, you will agree that we may find temporary obstruction of the lachrymal canal from spasm, plugging, or swelling, and permanent obstruction from pathological changes; and, also, that the obstructions may be found in position at only one or at several points, and in degree from the mildest type of temporary obstruction to complete obliteration.

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Combining the anatomical relations with the classifications of causes about to be given, we will understand that there are certain parts of the canal at which the degree and the frequency of obstruction are greater than in others — namely, the external and internal extremities of the canaliculi, and the superior and inferior ends of the nasal duct.

The causes that produce the morbid changes which lead to the obstruction of the canal may be considered under classes, as follows:

1st. Those causes whose efforts are transient, and do not reappear. Under this class we find traumatism, acute inflammatory trouble of the lids and conjunctiva, and exanthemata.

2d. Those causes whose efforts are more or less, and may be, constant, and are dependent upon a diathesis. Under this class we find scrofula and syphilis in their various forms.

3d. Those causes whose efforts are more or less constant. They may be external or local, but they are not constitutional. Under this class we find asthenopia, ametropia, chronic inflammatory diseases of the eye or its appendages, occupations demanding excessive labor from the accommodation, or causing constant exposure to external irritants, such as light, heat, wind, dust, etc., and diseases of the nasal passages.

Individual members of any one of these classes may exist separately or in combination with one or more individual members of their own or other classes.

In closing my attempt to show that the conditions are such that the treatment which is to follow is rational, I present the conclusions thus far reached, believing that I have fully established them:

1st. That the anatomical construction of the lachrymal canal presents certain peculiarities so different from an ordinary tube that it must have more than the functions of an ordinary drain-pipe.

2d. That the anatomical relations of the canals, and their action, are such that they must have a special effect upon the functions.

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3d. That in every obstruction we may have a protracting agent, and, therefore, should look for it, in addition to removing the obstruction.

4th. That certain parts of the canal are more often the seat of the obstruction than others.

The first step in the treatment is to correctly diagnose the first and the now existing causes that led to the disease which produced the obstruction, and then to remove them, as far as possible, before attempting operative relief. The first class of causes, from its nature, requires no treatment for its removal. The second, the scrofulous or syphilitic diathesis, requires prompt and energetic measures, such as are ordinarily used. Of the third class, the constant causes, rest is essential in all, and in a number — light, heat, cold, dust, wind, etc.— hygienic surroundings are necessary. Inflammatory troubles of the eye and its appendages, unless the canal be the primary seat of trouble, should receive suitable treatment. Entropium or ectropium should be relieved by operation. Disease of the nasal passages, a frequent cause, should receive prompt attention. Ametropia and asthenopia, if together or alone, should be carefully and promptly corrected. I wish to call special attention to these troubles on account of their frequency, importance, and common escape from correction. The method of their correction is foreign to our present subject, and, therefore, will not be entertained. Hypermetropia and hypermetropic astigmatism are the forms usually met, and they are frequently associated with asthenopia. When the latter is present, there is an increased effort of accommodation, with more or less spasm of the muscles above described. With spasm of the orbicularis, we find constriction of the canaliculi; with contraction of the tensor tarsi and tendo-oculi, we find increased shortening, and a special sphincteric action at the puncta and at the decussation of fibers just in front of the sack and about the canaliculi. I have often found permanent relief in spasmodic, intermittent, or simple plugging of the canal, by correcting the errors in refraction, thus proving the importance of this cause.

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The predisposing causes corrected, we next locate the seat of the obstruction. If the puncta is open, pass a No. 1 Bowman probe into the canal as far as the sack, provided there is no intermediate obstruction; then use a small lachrymal syringe with moderate pressure, and if a good stream passes down into the nose, no further surgical treatment is necessary. The after-treatment should consist of an occasional washing out with a weak alkaline solution. If the punctum is closed, and the mild use of a probe has failed, it is probably permanently closed or obliterated. In treating this condition, violence should be avoided, and a suitable knife should be employed to incise from the punctum along the margin of the lid, not more than three millimeters; then the former methods are to be employed, and if they fail, the incision should be extended to the sphincter, being careful to avoid cutting through the fibrous bands, thus destroying its physiological function. Strictures found at any point in the canaliculi should be treated in like manner. Should there be a dachryocystitis, it should receive such treatment as will relieve the inflammation and check the discharge.

We are now to meet the most important part of the treatment, in which the manner of manipulation determines, largely, the final result. In the nasal duct we have a fixed bony canal, with no expansive power, a connective tissue, and a mucous membrane. All of these parts are highly sensitive, and, be as careful as we may, some irritation must follow. Nature demands, through folds of mucous membrane, that the nasal duct in its upper part should be small; therefore, as all our efforts in treatment should be to restore the natural conditions of tissue, the practice of making large, free incisions, and following them up by the use of probes nearly sufficient to fill the entire bony canal, and always large enough to produce a periostitis and a cellulitis, should be condemned; likewise, the protracted use of style and the forced passage of sounds other than by gradual dilatation. The latter is limited in its utility, and it is applicable in only a small per cent of cases.

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From the nature of the conditions already given, the mildest measures that will restore a free passage equal in caliber to that provided by nature are the best. From my own experience, and from my observations upon the results obtained by others, I find that a certain number will not yield to any treatment, and that the proportionate relief is greater under mild measures. I also find that if mild measures do not succeed, harsh ones usually increase the trouble. In carrying out the mild measures, make a free incision, if the gentle trial before mentioned fails, and pass a No. 3 or 4 Bowman probe. Occasionally a style, having the same diameter as the probes, can be used to an advantage for a very few days. This should be avoided as much as possible.

Next comes the after-treatment. In its normal condition, the canal is kept open by the passage of the tear, in obedience to a succession of forces; therefore, our efforts should simulate and establish this process. The quantity of tear ordinarily secreted is insufficient to clear away the muco-purulent accumulation constantly forming, and to perform its normal function, therefore, we must employ an agent or agents that will cleanse the passage, and that will maintain it at a maximum diameter. The lachrymal syringe and the lachrymal probe are the agents in common use. There are serious objections to each of these — their irritating properties. Protracted probing and syringing, even at the hands of those who have attained the highest degree of mechanical skill, frequently produce sufficient irritation to indefinitely extend the treatment and the trouble. The occasional use of the probe is necessary, but frequent use should be avoided as much as possible. The lachrymal syringe has its place, and during the active treatment it is indispensable. In the after-treatment its chief objections lie in the fact that its dilating force is too impulsive and too violent in its action, and in the fact that the force imparted to the piston of the syringe is too often carried to the nasal wall of the lachrymal sack, producing more or less irritation and pain. It is difficult for an

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experienced operator to overcome these objections, and impossible for a novice. The patient cannot manage them himself.

The lachrymal douche has the combined advantages of the probe and lachrymal syringe, and it discards their objectionable properties. In construction, it consists of a reservoir that will hold from one to eight fluid ounces, to which is attached a piece of rubber tubing five to eight feet long. The free end of this tube is attached to the base of a silver nozzle. This nozzle is cone-shaped, thirty-five millimeters long; its diameters are three and a half to four millimeters at its base and one and a half to two millimeters at its apex.

To use the lachrymal douche, one should first see that the connections are air-tight; then establish a current of water, flowing through the tube, and insert the nozzle in the artificial opening at the nasal extremity of the canaliculi; after which elevate the reservoir to the height necessary to gain the required amount of hydraulic pressure. This manipulation is so easy that the patient, after one or two trials, experiences no difficulty in carrying it out.

The results obtained from the use of the douche may be briefly summed up as follows: A large per cent of those who have heretofore required a long after-treatment with probe and syringe have been able to return home the second or third day, and to carry out th treatment themselves with good results; others, who have submitted to the usual prolonged after-treatment without favorable results, have been able, by substituting the lachrymal douche, to obtain relief in a few days and to discontinue all treatment. To understand how these results are obtained, it is necessary to recall what has been said of the anatomical relations, and to bear in mind these conditions. After the nozzle of the douche is placed in position, no other effort is required more than to sustain it. The current is under complete control. Its force can be increased or diminished at will, by raising or lowering the reservoir, and its action can be continued indefinitely. The force of the current is sufficient to clean out the contents of the

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sack; therefore, the pressure can be so regulated as to give a required amount of dilatation. If the constriction be at the junction of the canaliculi with the sack, the nozzle is so shaped that it of itself dilates sufficiently. If the constriction be at the junction of the tear duct and the sack, the pressure in the sack is sufficient to give dilatation in the natural way. If the constriction be at the lower extremity of the tear duct, there is dilatation throughout the whole canal, distributed equally and in every direction, making impression upon the tissues in proportion to their power of resistance, thus distributing the dilatation in the manner nâture designed. It often happens that, though there is sufficient passage, the swelling and the inflammation will not permit water to pass at the first trial, or, if so, only after the pressure has been continued some time. The use of simple antiphlogistic agents and a little patience, provided the first part of the operation was properly performed, will always overcome the trouble.

DISCUSSION.

Dr. Young thought the paper excellent, and particularly valuable to the general practitioner. Reported a case badly treated by an ignorant practitioner to illustrate the necessity of more knowledge on this point.

Dr. Hazen.—The stricture is not like that in the urethra; it does not get hard and dense. Generally there will be found two or three strictures. I usually slit the canaliculi, then carry down bulbous probes until I can get in a tube; then I remove the stylet and use the injections. These cases can usually be cured in four weeks. Violent treatment is to be deprecated.

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XXXIV.

VOCAL GYMNASTICS AND THEIR USE IN DISEASES OF THE THROAT AND NASAL PASSAGES.

By F. E. Cruttenden, M. D., *Des Moines.*

Because of their etiological and pathological relations, the variety of diseases of the throat and nasal passages is so large that any attempt to establish a claim of value for any remedy on account of its therapeutical and prophylactic power, without giving it limitation and qualification, would be absurd. Fully recognizing this, I wish to define what I mean by the sweeping title I have selected. A comprehensive exposition must describe and define vocal gymnastics; it must indicate the class of diseases of the throat and nasal passages in which the application of vocal gymnastics has a therapeutical or prophylactic result; it must indicate the mode and *rationale* of this result; it must distinctly define and limit the use of vocal gymnastics; and it must give a method supported by corroborative testimony from experimental and practical work.

The intricate and close connection of the functions, organs, and members of the body will not allow serious impairment to one or more of them without causing more or less impairment in others; likewise, improving the condition of one or more will improve others. Further, it necessarily holds good that an improvement in the condition of more or all of them would have a like greater effect. These common truths, so long established by the experience of all physicians, govern vocal gymnastics, and indicate that they should not be limited, but that their practical exercises should be distributed so as to take in every part and member of the body that has any practical relation or connection to the vocal organs.

Vocal gymnastics are movements and combinations of movements by which all the muscles that directly or indirectly modify or take any part in vocalization receive a vigorous or

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stimulating exercise without being brought, in any degree, to exhaustion.

The systems or methods of vocal gymnastics are varied, but they all contain a more or less rhythmical combination of movements, so executed that they strictly conform to the natural movements in such a manner as to produce the greatest amount of effect with the least amount of exhaustion, and, at the same time, to produce the most perfect physiological effects from the intrinsic muscles of vocalization.

The varied movements or combination of movements of vocal gymnastics, described in scores of manuals upon this subject, are commonly recognized as gymnastics of the auxiliary muscles, or those far removed and indirect elements in vocalization, and gymnastics of the intrinsic muscles, or those directly employed in vocalization.

Gymnastics of the auxiliary muscles, or those of the limbs, trunk, and neck, except the great abdominal muscles, diaphragm, the intercostal muscles, and muscles of the throat, are in common use in most of our public schools. They are too well known, and they are of too little importance compared with the intrinsic muscles, for more than mention; their influence is felt only through the general stimulation that they produce to the functions and body as a whole.

Gymnastics of the intrinsic muscles, or muscles of the vocal organs, are varied, both in method and principle. While the majority of noted writers and instructors agree in general, there is a large, respectable minority who radically differ in principle, and, therefore, largely in detail. With them, and with the mass of ordinary writers and instructors, this difference arises from the method of producing vocal sounds and its underlying principle, the management of the breath. Among the causes for this difference come empiricism and imitation. From these are built theories that produce, or attempt to produce, a practical method supporting the theory, which, in the mind of the originator, is of more importance than the results of his experience. This leads him to strenuously support it,

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at all hazards. The crudity of his knowledge makes it easy for him to assign his cause for failure to reasons other than defects in his own system. One accustomed to reading articles upon this subject written by those engaged in teaching the use of the vocal organs, and who is accustomed to meeting some of their work, will readily perceive the truth of my statements. Among the mass of this class, known as elocutionists, music or singing teachers, there are a few able writers whose writings and work show that they have a scientific knowledge of their profession, and a degree of mastery over vocal gymnastics of the intrinsic muscles that enables them to obtain good results. Thus the systems and methods of gymnastics of the intrinsic muscles in common use are proper and improper. In either of these there are special exercises to strengthen the muscles used in the management of the breath, in the production of the tone, and in the placing and coloring of the tone. The proper movements are those which produce the greatest amount of effect with the least amount of exertion. All exercises that produce exhaustion or fatigue have either been prolonged or are improper in method. Vocal gymnastics have a power for good or evil, as they simulate, more or less, the normal, natural, or proper movements.

The difference between gymnastic movements and the movements of ordinary use is that one is wholly conscious, studied, and self-imposed, while the other is unconscious. Both are alike stimulating and exhausting.

There are no diseases of the throat and nasal passages, unless it be traumatism, syphilis, or malignant diseases, for which vocal gymnastics, at some stage, is not a valuable remedy. Under certain predispositions, it is a prophylactic. Suppose that the proper system is used throughout, then, in simple inflammatory troubles and congestions, it is first a therapeutic, giving vigor and tone, with mechanical action to unload the blood-vessels, and, second, a prophylactic to chronic inflammation. In chronic inflammation, such as a simple laryngitis or pharyngitis, especially if there is a weakness of the muscles,

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corresponding to muscular asthenopia, it helps to restore vigor to the muscles and tone to the mucous membrane, the same as exercises in muscular asthenopia increase the muscular power and relieve the chronic conjunctivitis. In chronic tonsilitis, with atony of the pillars and soft palate and more or less atrophy, it checks the inflammation, gives vigor, and often diminishes the hypertrophy, if not fibrous. Follicular pharyngitis or laryngitis, often called "speakers' sore throat," because it arises from abuse of the vocal organs, receives more or less radical relief. In laryngeo-pharyngitis, laryngitis, and rhinitis, benefit is derived indirectly by its effect upon the expansive power of the lungs. In chronic coryza, without true fibrous hypertrophy of the mucous membrane, it relieves and assists to unload the blood-vessels and to reduce the œdema. It is prophylactic to all local diseases of the throat and nasal passages, and therapeutical as they are more or less in their incipiency.

To understand how and why we obtain these therapeutical and prophylactic results, we must recall and bear in mind some of the general anatomy and physiology of the vocal organs. The relations of the diaphragm and the peculiarity of the arrangement of its muscular fibers, causing it to play a very important part in the physiology of respiration (in deep breathing, it is the most important element); the varied dimensions of the thoracic cavity, and the comparative difference in the elasticity of its parts; the arrangement, strength, and size of the muscles attached to and directly employed in the movements of the walls of the thoracic cavity; the muscles of the neck and throat and the freedom of their movements; the associate movements of the larynx, tongue, soft palate, constrictor muscles, and lips — all show, to any careful observer, who will accept the theory of nature's economy as his guide, that these peculiarities are not accidents, but the results of the working out of certain fixed laws, that provide a definite construction for a definite work. Should we acknowledge this, we find that the lower part of the chest has the greatest

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amount of expansibility and the greatest amount of space, and that it is so constructed as to require the least amount of effort to furnish the greatest power; and that the lower part of the chest is further removed, and, therefore, more indirectly connected with the movements of the muscles of the throat and larynx. Ascending, as we approach the top of the chest, we find that its expansibility and capacity greatly diminish; that the chest is more rigid; that the movements of the ribs are less; that, to produce this movement, much larger and heavier muscles are employed; and that a very considerably greater degree of muscular power is necessary. Logical reasoning points out, at once, that nature must have designed the lower part of the chest for normal, tranquil breathing; and as the excitement or the demand for breathing increases, the costal is brought into rhythm with the deep or diaphragmatic breathing, and finally, with complete inflation, the rhythm is increased by the addition of the clavicular breathing. The expansion of the latter is produced by a degree of elevation that necessarily causes contraction of the muscles of the upper part of the chest and the neck. The experience of all successful teachers of singing or elocution, and professional singers, confirms this logical conclusion, and deep breathing, as it is commonly called, is generally accepted as the natural method.

The anatomical construction of the lungs is such that no other method of training can so effectually, with the same effort, change the residual air. The trachea, beginning at the third rib, is unyielding, and supplies a uniform column of air to and from the lungs. No action of the great muscles of the chest or neck can change or modify the dimensions of this column. The cubic inches of lung capacity is proportionately much less in the clavicular or costal than in the diaphragmatic portion of the lung. Nature, contrary to her prevailing custom, has made a mistake in her economy, or else she did not design the muscles of the extreme upper part of the chest or neck to be employed in ordinary respiration, but only in excitement requiring the full limit of her capacity. Again, were these muscles so

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designed, nature has so arranged her economy that during the act of vocalization these muscles are employed to perform two antagonistic movements, or to be contracted and relaxed at the same time. In contraction, or rigidity, of the muscles of the throat and larynx, the association they have with the hyoid, thyoid, and constrictor muscles causes them to contract, and in like manner to attempt, like the muscles of the throat, to remain at rest and be active at the same time. Absurd as this seems, it is nevertheless true, and daily observation will prove to any one that, although this cannot be, yet the trial is made, and an imperfect result is obtained, at the expense of the muscles. On the contrary, their action should be combined with an associated rhythm so as to produce the greatest amount of effect with the least amount of effort, avoiding all direct antagonism. This unnatural antagonism leads to exhaustion; from exhaustion comes congestion; from congestion, inflammation; etc.

In the intrinsic muscles of the larynx can be traced the same combinations, the same forces, with the same comparative results. The hyoid, thyoid, and constrictor muscles bear a like relation to the pharyngeal, palatine, and glossal muscles, and they have the same antagonisms.

Thus we are able to trace, from the extreme limit or base of the thoracic cavity to the exit or mouth, that if the rhythm of nature's movements is interrupted or changed, then it likewise causes a change throughout the entire muscular rhythm. This change is found in all degrees between the extremes of proper and improper methods.

In respiration without vocalization there are no antagonisms, and the improper method is tolerated with but little inconvenience. This is why it is so easy to adopt a more or less improper method of respiration, so injurious when applied to its double function of vitalizing and vocalization. In the production of tone, the respiratory muscles assume a secondary and very important function — the management and control of the breath. In respiration, within a definite period, the mus-

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cles make a simple expansive movement and then relax. In the management of the breath, the muscles make the expansive movements, but cannot simply relax, except at an expense to the proper production of tone; they must retain the air, must take no more than they can control, and they must express it against the vocal cords at such intervals, in such quantities, and with such force as is needed to produce the proper tone. Therefore, recalling the improper method previously described, we can understand the importance, in correct breathing, of freely relaxing the muscles of the throat for the combined movements of the laryngeal and hyoid muscles, necessary to produce with ease the different vowel sounds. The antagonism increases the strain, wastes the air, exhausts the muscles, and produces with difficulty an effect which, with proper management of the breath, could be produced with ease. The same relative trouble is met with in the other groups of muscles.

The indications for the employment of vocal gymnastics in diseases of the throat and nasal passages depend upon a condition of loss of vigor from inadequate exercise or exhaustion from an improper use of the vocal organs. These predispose to and protract diseases of the throat and nasal passages. The *rationale* of this is well illustrated by the parallel conditions in muscular asthenopia, and, like the muscular exercises in the treatment of asthenopia, after first removing the strain by using the required agents or treatment, vocal gymnastics should be continued for a long time, until they have given sufficient vigor to place the muscles at their maximum degree of strength. The difficulties to be overcome are fully as great as those in asthenopia; and, as in asthenopia, vocal gymnastics are applicable to all people, and as their lives and habits are more or less artificial, they require artificial stimulation. Women, from their confining habits and manner of dress, calculated to contract the most vital portion of the chest, are especially more or less benefited, and men in a proportionate degree.

I have already anticipated the beginning of the method that

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must be adopted. We must begin with abdominal respiration, and with the inspiratory movement. To understand the importance of this, due recognition must be made of the diversions from the normal condition through the conventionalism of dress and habit, more marked among women. After the girl has reached the age of twelve or fourteen years, the waist is contracted. Public opinion demands that her deportment and her movements be restrained; that the clothing, heretofore suspended from the shoulders, be supported by a belt or series of bands at the waist; and that the natural movements and freedom of the limbs and respiration be restricted. The confinement, at first mild and easily tolerated, is by custom gradually increased, and she soon learns to abandon the normal, deep respiration usually found in children for the costal or clavicular method. This new method is soon established. Nature kindly helps by diminishing the powers of the deeper part of the chest and increasing those of the upper. In the course of a few years, the bands about the waist cause displacement and restriction of the movements of the abdominal organs. This leads to functional derangement, and then to organic diseases, which impair the general health and render the development of the special functions of women more or less imperfect, and directly affects the vigor and power of resistance of the whole system. Not that deep breathing directly improves this, but because, to establish deep breathing, it is necessary to remove the common cause; therefore, deep breathing has an indirect, as well as a direct, effect, and we see the double importance of deep-breathing exercises. It follows that the beginning of our method should be a mode of dress that removes all restrictions to freedom of movement of the abdomen and chest. The practical solution of this means suspension of the clothing from the shoulders. It matters little whether the belt at the waist is an inch more or less, as the mechanical effect is only to change the relative height of the belt, as it will fix itself at the lowest possible point, in obedience to the weight and pulling force of the clothing.

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Having removed the restrictions, the patient should assume an easy, erect position, sitting or standing, the mouth closed, the upper part of the chest at ease; and, as a matter of convenience to note the effect of movements, the hands should be placed over the upper part of the abdomen or lower part of the thorax. The patient should be directed to take slow and steady, deep breaths, avoiding movements of the upper part of the chest. After he has learned to inflate fully and easily, he should be directed to greatly increase and then diminish the number of inspirations per minute, at regular intervals, without losing the character. Next should follow the management of the expiration. After a full or partial inspiration, he should voluntarily expire, rapidly or slowly, and he should hold or stop and hold the breath for a short time, at the beginning or at any stage of the expiratory movement, and then complete the expiration, slowly or rapidly, or begin again the inspiratory movement. By these exercises the patient learns to control his breath. After the acquisition of a mastery over these movements, without direct costal or clavicular assistance, he should increase the inspiratory act so as to require active assistance from the costal muscles. The same series of exercises should be pursued as above described, retaining throughout, in active use, abdominal or deep respiration. When the second step has been acquired with a certain degree of success, then, in the same manner, he may add the third, or the most violent respiration, which adds clavicular to the abdominal and costal respiration. After he has acquired a voluntary control over the several steps of respiration, and can continue his exercises for a reasonable time without exhaustion, by performing these exercises at regular, stated intervals, he will have overcome a major part of his difficulty — he has learned to breathe again as nature taught in childhood, and to abandon the perverted method caused by imitation of sounds and conventionalism of dress and habit.

In the production of tone, we presuppose that the patient has attained a fair degree of control over his respiration; that

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he is able to bring to bear, at will, a column of air against the vocal cords with any degree of pressure ranging between the limits of the two extremes; and that the muscles of the larynx and throat are at liberty to execute such movements as they may be called upon to make within their normal range.

The tone is produced by a column of air coming forcibly in contact with the vocal cords. The vocal cords receive the attack in either a right or a wrong way, in obedience to the common laws of acoustics. In order to make this clear, I will first describe the wrong way. It is one in which the vocal cords are not in their relative position to receive the attack of the column when it comes, as there is already a column of air passing through the glottis when the vocal cords make their contraction to receive the special column to produce a special tone. As a result, a certain quantity of the column of air is pressing and being pressed through with the vibrating column, causing resistance to the vibrations and marring the intensity and quality of the tone. To compensate for this, the expiratory muscles make an increased effort, and the muscles of the throat a spasmodic contraction, to modify the tone and overcome the effect. To produce the proper tone, the expiration should be stopped for a brief interval (and here comes into play the control of the breath). During that interval the laryngeal muscles make a rapid movement, so that, when the expiratory movement again commences, the vocal cords receive it and emit through the glottis just the quantity of air needed to produce the intensity, quality, and pitch of tone designed. During the production of this tone, no more air should be emitted than can be converted into a vibrating column; this is called the attack.

The first step of the method to be employed to learn to produce the attack properly constitutes the voluntary or involuntary holding of the breath for a very brief interval, then producing vowel tones in staccato style, emitting one, resting an interval, then another, and then, in a like manner, a series of tones. After this has been accomplished, the tone can be

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made more rapid, and the interval of suspension of the expiratory movement finally blended into unconsciousness. This is hardly of less importance than the method of respiration. These tones at first should be made without much effort, and should never be pushed to fatigue. The next step is the extension and the expression with each staccato tone, prolonging the tone and modifying its intensity. After the vowel tones in the natural voice, excluding changes in pitch and the singing tones, comes the fourth step — articulation, or the combination of consonants with vowels. This is the most intricate part of the method, and in this there is more difference of opinion as to the method of procedure than in all the rest combined. Seemingly, no two writers agree exactly in detail. Our object being to teach an easy and natural method, and not to produce elocutionary effects, it is not so difficult.

As in the production of the vowel tones, so in articulation— there are two ways, the right and the wrong; and, for like reasons, the wrong should be described. It is one in which distinctness of articulation is in the major part lost. The tones have too much of the guttural in their character, and they produce a feeling of exhaustion and irritation of the throat. Continued efforts produce dryness of the throat, demanding water, etc. The muscles of the throat, tongue, palate, and lips are restricted in their movements, and are more or less rigid. The sound seems to be deep-seated, coming as from out of a barrel. All of this is caused by attempting to produce the consonant modifications of the vowel tones in that part of the throat we have already employed in giving character to the vowel tone. As the pure tone of a musical instrument requires a continuance of the dimensions throughout the interval of production, the variations of the tone are produced by difference of the caliber or dimensions of the instrument. Likewise do the vowel tones of the human voice require steadiness throughout their interval, and the dimensions of the cavity would give them their quality. On the other hand, articulation of consonants depends upon a sudden or rapid in-

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terruption or stroke upon the vowel tone. This stroke must be instantaneous in duration, and its intensity and precision govern the distinctness. Thus we see that it is directly antagonistic to the vowel tone; therefore, as articulation demands a uniformity of vowel tone throughout, combined with interruptions, it is plain that if we attempt to form both in the same place, by the same set of muscles, and at the same time, we will end in confusion, over-exertion, spasm, and an imperfect tone. Therefore, the correct method should be one in which the vowel tones will have exclusive dimensions requisite for that tone. This necessarily forces the action for the combined vowel-consonant tones upward and forward into the mouth and upper pharyngeal cavities, involving the soft palate, tongue, and portions of the throat, mouth, teeth, and lips. To accomplish this, after the patient has learned the several kinds of vowel tones, he should select words of a single syllable, or single syllables, having a combined vowel and consonant tone. He should repeat these tones in the same easy, staccato manner, especially exaggerating the latter. After he has become proficient in this, the various degrees of modification or combinations can be employed, using different vowels and words of one, two, three, and four syllables, and, finally, sentences. A practical suggestion that has been useful to me is one directing the patient to speak as if addressing one who is hard of hearing and dependent partly upon the expression of the face to understand what is being said. This little direction has often accomplished my purpose when others failed. The next step is a modification of the foregoing by pitch and intensity. The last step is the substitution of the singing tone for the speaking.

The physician, unless a musician, will find that, for all practical purposes, the application of these exercises to the ordinary speaking voice will be all that is necessary; yet a much greater degree of benefit can be derived from the application of the principle to the singing voice, between which and the speaking voice there are many differences. The singing voice

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has also a great many more difficulties to be overcome, which, if overcome successfully, will do far more toward strengthening the vocal organs than the speaking voice, and will have a much greater beneficial effect as a therapeutic or prophylactic agent, especially in diseases of the nasal passages. Instead of having a single form of receiving the attack, as in the speaking tone, the vocal cords present a form for each of the recognized registers of the voice. This is further complicated, because, at the points of transmission from one register to another, the tones can be produced with the proper attack in two ways — the upper part of one register or the lower part of the other. For the physician or patient to distinguish between these methods of production is very difficult.

No one except the thoroughly scientific and educated teacher, who is acquainted with the practical physiology of the vocal organs, should attempt to instruct the patient in vocal gymnastics for the singing tones other than those which can be executed with the utmost ease by the patient. The physiology, hygiene, and care of the vocal organs are usually left to an empirical teacher — one who has no practical acquaintance with the first principles. Why organs and functions of such vital importance should be wholly abandoned by the physician, and interest him so little, is at least singular. Within the last two years the special periodicals conducted for the benefit of teachers have contained a few articles from physicians. Most of them, like chapters upon this subject in the works of specialists of the throat, treat of the hygiene of these organs by advising against external exposure, etc., little or nothing being said about the management of the organs themselves. European writers have devoted considerably more attention in this direction, and within the last two years there has been a general revival.

After the theory comes the experience. What has been done, and what can be done? In answer to the first, every great singer who has said anything upon this subject has stated, most emphatically, that it has greatly benefited him or

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her. We have the testimony of physicians and other scientific men, dating back many generations, who have directly and indirectly advocated vocal gymnastics, but without giving a method. In 1844, an English writer of prominence not only endorsed this, but added to it invigoration of the nervous system and brain, giving his own experience and the experience of his students and associates whom he had induced to follow his directions. In this country, at the present time, there is a class of men among the laity, headed by E. S. Werner, of New York, who are doing good pioneer work. My own experience has been too limited to establish, even to my own satisfaction, the full extent of the benefit of a complete method, not subject to radical changes or improvements in its details. Of the general truth contained in this subject I am thoroughly convinced. During the last four years I have given it special attention, and when I have been able to control my patients sufficiently long to give it a fair trial and teach them principles herein contained, I have had the satisfaction of seeing all that I claim. By it, with little or no medicine, I have repeatedly, and from among all classes, not excluding music-teachers and elocutionists, been able to overcome chronic sore throat, or so-called weakness. Do not understand me to advocate this to the exclusion of other remedies, or by comparison to underestimate their importance.

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SECTION ON MATERIA MEDICA.

XXXV.

REPORT ON MATERIA MEDICA.

By W. W. Hale, M. D., *Des Moines.*

It is not my purpose to present that which is absolutely new in the field of materia medica, lest I encroach upon the domain of those who seek notoriety by constantly calling attention to new drugs, or old ones with new names; or of journals whose *business* it is to discover untold virtues in unknown drugs, and herald them abroad with a flourish of trumpets and endless endorsements from the unworthy of our profession. Nor shall I endeavor to detail in full the progress in this branch during the past year, but simply call attention to some of the contributions made that have particularly attracted my attention, and which I deem worthy the consideration of this Society.

Since the use of iodoform has become so general, and is daily increasing, it may be well, in this connection, to consider some of the unpleasant symptoms following its employment. Zeisel reports two cases in which there was a marked rise in temperature, and a diffuse erythematous eruption on the inner surface of the arms and thighs, and in one case albuminuria, following the external application of iodoform. In each case, when the iodoform was discontinued, the symptoms all disappeared, including a subsidence of the eruption. Upon resuming the use of the iodoform, the same train of symptoms again occurred, disappearing, as before, when the iodoform was withdrawn.

Schede, of Hamburg, mentions marked toxic symptoms, rapid pulse (150 to 180), increased temperature (104 degrees Fahrenheit, or more), loss of appetite, disquietude, headache,

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and, in some cases, disturbance of the cerebral functions closely resembling the symptoms of meningitis.

Kuester, while endorsing the use of iodoform, relates poisonous effects from its employment much the same as Schede.

Dr. H. Clark, in the Glasgow Medical Journal, reports toxic effects from the topical use of iodoform, detailing nearly the same symptoms as Schede.

Konig reports forty-eight cases of poisoning from iodoform used as a surgical dressing.

There are morbid alterations in the action of the brain and heart, the cardiac symptoms, as a rule, predominating. The toxic effects increase with the age of the subject; healthy youths and adults suffer least, the debilitated and aged most.

On the other hand, Mosetig, having employed iodoform in Listerism in seven thousand cases, has not seen a case of poisoning. He attributes his success to the use of a pure article, never using large amounts, avoiding pressure upon it in a wound, rarely changing the dressings, and never washing the wounds in dressing them (since some granulating surfaces are very active in absorbing material from without).

Mundy claims that its reckless employment is one of the chief reasons for its poisonous effects. He also suggests the use of small quantities, that the dressings should not be drawn tight, and only changed when absolutely necessary.

Hoeftmann reports but two cases out of one thousand in which any general symptoms were produced, and that Schede's symptoms were not once seen.

Resorcine has recently attracted considerable attention, chiefly as an antiseptic. It was discovered in 1860, by Hlassiwetz and Barth, of Vienna. It is a product obtained from galbanum and ammoniac, and is very similar to carbolic acid, though less irritating and having less toxic effect. It is very soluble in water, and has a feeble odor. Dr. Callais pronounces it a powerful excitant of the nervous system. In moderate doses it causes trembling, clonic convulsions and acceleration of respiration and circulation. Sensibility and

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consciousness remain intact, unless the dose is greatly increased. He suggests its use internally and externally in all diseases due to germs.

Dr. J. Andur states that a one per cent solution of resorcin retards fermentation; a stronger solution arrests it, destroys movement of infusoria and low organisms. He finds a one per cent solution prevents putrefaction in blood, urine, etc. He has employed it locally and internally in diphtheria, and reports remarkable results to the effect that out of two hundred and twenty-two cases not one died.

Dr. M. Cohn, in his thesis at Stuttgart, reports its employment in cholera infantum, with the result that out of thirty-five cases there was rapid recovery of thirty. He did not detect bad results in a single case, and is of the opinion that it is almost a specific in catarrhal inflammatory affections of the alimentary canal in children.

Dr. Saltmann reports seventy-four recoveries in ninety-one cases of cholera infantum. He thinks it reduces the mortality from thirty-four to fifteen per cent.

Several cases are lately reported in which chancres rapidly healed after an application of an ethereal solution of resorcine.

Dr. J. Simon, who has extensively employed belladonna in the treatment of children for many years, remarks that its use has been attended with marked success, and that his observation has been that children, as a rule, bear it well, just as adults bear it poorly. The physiological properties and therapeutical indications have been summed up as follows: "The principal action of belladonna is to produce diarrhœa, to diminish calorification, to increase the renal secretion, to maintain the nervous system aroused while rendering the central nervous system anæmic." He recommends full therapeutic doses to control the tendency to constipation in chlorosis, or that accompanied by abdominal neuralgia. The medium quantity used by him was ten drops of the tincture to a child of two or three years, divided in two doses. In many affections of the respiratory organs — simple acute laryngitis with spasms,

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etc.—he prescribes equal parts of the tincture of the roots of aconite and belladonna, giving to children two or three years of age ten drops per day. In a case of whooping-cough, in a boy three and a half years old, he administered thirty drops of the tincture of belladonna the first twenty-four hours; the following day he gave forty drops, the next sixty. The last dose was repeated daily for ten days, and with good results. In the case of a girl of thirteen with violent paroxysms of cough, he commenced with ten drops of the tincture, and gradually increased the dose to one hundred and twenty without the least accident.

Dr. Bartholow states, as a result of recent experiments (having in view dose as a factor in results), that "Medicines acting on a part, tissue, or organ can only increase or diminish the normal function, and cannot give to the function a new direction." There are not any remedies that create new functions; they cannot do more than increase, diminish, or destroy that already existing. There are remedies that produce morbid conditions, but they derange function. Irritability—that is, the power to react to impressions—is possessed by all organs. When a motor nerve is irritated, there is a contraction of the muscles to which it is distributed. If long continued, tetanus, and finally paralysis, occurs, inasmuch as the nerve fails to convey an impression. If a sensory nerve is subjected to continued irritation, the first effect produced is pain, then numbness, and finally anæsthesia. If a gland is subjected to irritation, it at first pours out an increased normal secretion, then an altered secretion, and finally fails to respond at all to the irritant. He reduces the whole matter to the physical law, "To every action there is an equal and opposite reaction." He then makes use of several illustrations to show that different, and even opposing, action may result from the same remedy in different doses. He has found that a small dose of strychnia injected into a frog will increase the irritability of the reflex function; but if the effects are continued, or the dose is very large, the reflex function after a time is exhausted, and

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no irritation will cause muscular action. Quinia shows marked differences when administered in small or large doses. Experiment has demonstrated the fact that small doses (two to four grains) at short intervals increase the blood pressure, while large doses (a dram or more) have an opposite effect. The same may be said of alcohol. In moderate quantity, it increases the blood pressure and body temperature; after large quantities are taken, there is a short period of stimulation, followed by depression, as is shown by slowing of the heart, reduction of temperature, and impairment of organic functions. Opium is mentioned by him in this same connection. He pronounces it the most powerful and sustaining stimulant we possess, and at the same time the most efficient remedy against the first stage of the inflammatory process. In order to get the stimulating effect, small and repeated doses must be given, while large doses are necessary to slow the action of the heart and reduce the blood supply to inflamed tissues. He limits the usefulness of opium in the inflammatory process to the stage of congestion. As to its opposing influence in different-sized doses, he refers to its action on the intestinal tube. Small doses stimulate the splanchnic nerve (the inhibiting nerve for the intestine), while large doses paralyze; hence, the small doses constipate, while large ones relax. Digitalis affords another example. In small doses it stimulates the pneumogastric and its terminal inhibiting ganglia, and the vaso-motor system; if the dose be long continued or very large, paralysis is the result. Calomel in small doses allays irritation of the stomach and upper intestine; large doses irritate and cause increased excretion. The same will apply to tonics, diuretics, and throughout the whole materia medica.

In this connection, we will consider briefly the views of Dr. J. R. Black, who advocates small and frequently repeated doses, rather than larger ones at longer intervals. He argues that the object in administering remedies is to modify morbid energy, usually in some special organ or tissue; that in disease there are usually rapid changes and disintegrations of the

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blood and tissues, as is shown by the rapid circulation, increased temperature, and general disturbance; that as a rule (much depending on the energy of absorption) liquid or soluble medicines are detected in the various secretions or excretions in from five to thirty minutes after administration; and that, to modify or subdue disease, we must make the action of the medicine as uniform and continuous as that of the disease. Hence, small and frequently repeated doses obviate any irritant effect and maintain a uniform and continuous influence. In way of illustration, he refers to drop doses of fluid extract of aconite root every half hour or hour in facial neuralgia, or half-grain granules of calomel and aloin each alternate hour to increase biliary and intestinal excretions, etc.

Dr. A. A. Smith asserts that half-drop doses of Fowler's solution every half hour for six or eight doses will often relieve the vomiting of pregnancy or that following a debauch. One twenty-fourth of a grain of hydrargyrum cum creta every fifteen or twenty minutes will give good results in the vomiting and diarrhœa of a non-inflammatory type in children, while in an inflammatory variety teaspoonful doses of a solution of bichloride of mercury (one grain to the quart) every hour is of marked benefit. He also claims, from clinical experience, that teaspoonful doses of a solution of tartar emetic (one grain to the quart of water) every half hour will afford relief from the wheezing and cough attending bronchitis in children.

In summing up an article on this subject by Dr. Vanderburg, we find that he claims, in addition to what has already been said by others quoted, that copaiba in small and frequent doses cures urticaria; atropia, false croup; ipecac, vomiting from great nausea: cantharides, acute cystitis; castor oil, diarrhœa; calomel, night headaches.

This, gentlemen, is, very briefly, the report of the Section on Materia Medica and Therapeutics.

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XXXVI.

PARALDEHYDE — A NEW HYPNOTIC.

By Ira K. Gardner, M. D., *New Hampton.*

This new drug has only been recently introduced into this country, and has, therefore, a rather meagre literature; but there has been an occasional contribution to a small number of medical journals. The Philadelphia Medical News of July 28 and October 20, 1883, notices it editorially. The October number, 1883, of the American Journal of the Medical Sciences has a brief article on this subject, taken from the Paris Medical Gazette. The Philadelphia Medical and Surgical Reporter, in its issue of November 17, 1883, contains a very brief editorial notice. Dr. J. C. Wilson read a paper before the Philadelphia County Medical Society, entitled "Note on Paraldehyd," which was published in the New York Medical Journal, December 15, 1883.

This is all I have been able to find published on the subject of paraldehyde. It has been difficult to obtain samples for administration, and orders have been subjected to long delays. So far as I know, the drug is not made in this country, and, like all new products of the chemical laboratory, is expensive. If, however, the drug comes into general use, it will be greatly cheapened. I remember that I paid, in the spring of 1870, $1.50 for my first ounce of hydrate of chloral, but before the close of the year it could be purchased for one-fifth of that sum.

To the Italian physicians, Cervello, of Palermo, and Morselli, of Turin, is due the credit of first calling the attention of the profession to the use of this drug.

Paraldehyde, above 50 degrees Fahrenheit, is a colorless liquid, with a sharp, pungent taste, and ethereal-like odor. When the odor is only faintly perceived it is very much like sweet spirits of niter. Its specific gravity is .998, boiling at or

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about 225 degrees Fahrenheit, and soluble in eight parts of water at the ordinary temperature. It is a white, crystalline body below 50 degrees Fahrenheit.

Paraldehyde is an isomeric modification of aldehyde. What is aldehyde? Liebig was the first to obtain aldehyde, although it was discovered by Doebereiner in 1821. It is simply alcohol deprived of its hydrogen without the introduction of oxygen, and Liebig gave it the name *dehydrogenated alcohol.* It is expressed thus — C_2H_4O. The chemical formula for alcohol is C_2H_6O. If aldehyde, at the ordinary temperature, be acted upon by sulphuric, sulphurous, or nitric acids, the product resulting will be paraldehyde. Its chemical formula is $C_6H_{12}O_3$. It will thus be observed that in each molecule of aldehyde and paraldehyde the same kind of atoms exist, but the latter is a multiple of the former.

For medicinal administration the dose ranges from one and one-half drams to two and one-half drams. One dram for an adult, under ordinary circumstances, has been found to be the average dose. Its taste and odor is penetrating, and, to most patients, is rather disagreeable, and must, therefore, be considerably diluted before administration. It is soluble in eight parts of water, but a ten per cent solution of sweetened water, or sweetened mucilage of acacia, with syrup of orange-peel, makes a more palatable mixture. In favorable cases sleep will come on in from ten to twenty minutes, and continue for several hours, when the patient will awake without any feeling of nausea, depression, distress, dullness, or headache. In moderate or even large doses it has no effect on the heart or intra-vascular pressure.

The cerebral hemispheres are first influenced by its action, drowsiness quickly coming on, and there is usually an absence of the preliminary stage of excitement which commonly occurs with the sleep-producing class of drugs. In a letter received from Dr. J. C. Wilson, of Philadelphia, he says that he "was annoyed on three occasions by the initial stage of excitement which preceded sleep in aged persons."

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After its effect on the hemispheres, the medulla oblongata is next brought under its influence, and finally its action extends to the spinal cord. An excessive dose suspends the functions of the medulla and respiratory center. The heart continues to act after respiration has ceased. As regards its action on the heart, it thus appears to be a much safer agent than chloral; indeed, it is believed to possess many of the better qualities and none of the dangers of chloral.

In addition to the valuable hypnotic and anodyne qualities of paraldehyde, it has been demonstrated by the Italian, Professor Cervello, to antagonize the action of strychnine. He says that "paraldehyde arrested the action of strychnine after the manifestations of poisoning began, or prevented the appearance of toxic symptoms." He further says that "the seat of the opposing actions is the spinal cord — strychnine increasing and paraldehyde lessening the reflex excitability of the gray matter." As a hypnotic, its effect does not continue so long as with chloral, but it may be prescribed in many cases where it would be improper, or even dangerous, to use the last-named drug.

When one is compelled to use a sleep-producer for a long time, as in persistent insomnia, it is believed that paraldehyde will not cause the unpleasant symptoms which are occasioned by the continued use of chloral — such as squamous skin disease, partial disintegration of red corpuscles, as shown by purpuric spots under the skin, distention of the tissues in the neighborhood of the eye with yellow serum, diarrhœa, and great prostration. An objection to the employment of paraldehyde is that it imparts a heavy and disagreeable odor to the breath, which pervades the apartment where the patient remains, and may be perceived for several hours. This would seem to indicate that it is almost wholly eliminated from the system, unchanged, by way of the lungs. I have thus far used paraldehyde in the following cases:

Case I. Mrs. G., aged 35, had suffered for years with frequent and persistent attacks of headache, which, when they

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occurred, prevented sleep for two or three days and nights at a time. In answer to a telegram, she arrived at the bedside of her mother a few minutes before death took place. Six hours later I found her very much excited, restless, partially unconscious, being unable to reply to questions coherently, quick pulse, and complained of severe pain in back part of head. Gave her one dram of paraldehyde in fifteen drams of sweetened water. She went to sleep in about half an hour, and, on awakening, after sleeping eight hours, there was no nausea, headache, nor so much depression of spirits.

Case II. Mrs. S., 80 years of age, has for the past five years been slowly passing into a condition of senile dementia, with gradually increasing insomnia. For a time preparations of the opiates — Dover's powders and the tincture — afforded a certain amount of relief, but finally ceased to accomplish any good in doses that were deemed harmless. Chloral was next given, in thirty-grain doses, without the slightest apparent benefit, neither producing sleep nor calming restlessness. Paraldehyde was given on two successive nights — one dram each night — without any appreciable effect in the case whatever. As she could not be induced to take a larger dose, no further use of the drug was made. Morphine was afterwards given, which somewhat calmed the restless condition of the patient.

Case III. Mrs. S., 37 years old, had, two weeks previously, a severe attack of menorrhagia, which caused quite considerable prostration. She had no pain, but was restless, and complained of inability to sleep. As the opiates disagreed with her, one dram of paraldehyde was given before retiring, which induced sleep in a short time. In the morning she felt refreshed, and had no nausea, headache, nor distress of any kind. The drug was used in the same sized doses for three successive nights with like happy effect.

Case IV. Miss C., aged 20, was a subject of hysterical attacks; had had all the changes rung on a large list of drugs; had also had local uterine treatment. She had become a

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victim of obstinate wakefulness, accompanied with melancholia. After passing a very restless night, during which a few moments of sleep were obtained, she would complain of headache, with much mental depression. One-half dram of paraldehyde was given, which soon induced sleep, but only of short duration. The dose was subsequently increased to one dram, which procured a good night's sleep. The drug was used each night before retiring, in one-dram doses, for two weeks, when it was discontinued. She was now able to sleep well each night. The melancholia gave way to a more hopeful condition of mind, and all drugs were withdrawn, except a mild tonic course. The local uterine treatment was also discontinued.

Case V. Mrs. F., 75 years old, had, on the 23d of June, 1883, an apoplectic seizure, which resulted in hemiplegia and partial aphasia. After a time there was some improvement in the case, but insomnia now became a very troublesome and a very persistent complication. The opiates afforded scarcely any relief. Chloral and bromide of potassium, separately and in combination, were used, but the insomnia was still unrelieved. At last paraldehyde was given, in one-dram doses, immediately before retiring. A sound sleep was induced in about half an hour. The paraldehyde was first prescribed on February 7, 1884, and has been the only remedy since used for the relief of the sleeplessness. It has not been given regularly each night, but occasionally, as the symptoms seemed to require — one, two, or more times a week. She has taken altogether six ounces of paraldehyde, and the dose has not been increased beyond one dram.

Case VI. Mrs. M., 34 years old, mother of five children, is now five and one-half months advanced in pregnancy, and in a fair condition of health. She complains of inability to sleep. There appears to be a dread of sleep, with slight melancholia, morbid feelings, and mental depression. One and one-half drams of paraldehyde were given on retiring. Sleep was induced in twenty-five minutes, and continued all night. The

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remedy was prescribed for one week, after which time she was able to obtain sleep without the use of any drug.

While paraldehyde is beyond question a very efficient hypnotic, it seems scarcely probable that it will supersede chloral.

A careful study of my limited clinical experience, and the more extended experience of others, leads me to the belief that we possess in this new remedial agent a valuable adjunct to our somewhat meager list of pure sleep-producers.

In Case No. 2 — the case of senile dementia — it failed; but the dose was too small, and other remedies had also met with failure when given in large doses.

In Case No. 5 — the case of paralysis following apoplexy — it succeeded in one-dram doses where other old and well-tried drugs had failed.

The paucity of cases reported is explained partly by the difficulty of obtaining samples of the drug, and partly by my desire to prescribe it only when other remedies had failed, or were contra-indicated.

XXXVII.

THE GLUCOSE PRODUCT, AND SUGGESTIONS AS TO ITS THERAPEUTIC VALUE.

By W. D. Middleton, M. D., *Davenport.*

I have no doubt that most of the members of this Society are conversant with the fact that we have three or four large establishments in our State employing a very large amount of capital in the manufacture of the substance known as glucose, or grape sugar, from our Indian corn. Many of you are also familiar with most of the details of the process employed, it being the simple manipulations of our school-day chemistry in which starch is treated with an acid; the magnitude of the operations and the financial element involved having only in-

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troduced much labor-saving apparatus, and so rendered financial success possible. The products of these factories are also probably familiar, either in the shape of the various fluids known as syrups of various names, or the white, tallow-like solid known in the market as "hard glucose." To many of you, innocent of any such familiarity of which you may be cognizant, the material has probably appeared under some other name, for it has been very largely used as an adulteration of both syrups and solid sugars.

It is scarcely, however, from a sugar-market point of view that we would ask you to consider the substance at a meeting of this kind, but simply to attempt to draw your attention to several conditions occurring in your practice in which, in the opinion of the writer, this material might, theoretically at least, render you marked assistance, with a view to perhaps enlisting some of you in a line of experiment whose results might be beneficial in the future.

To revert for a minute to these factories before spoken of: One encounters, first of all, a collection of immense vats, in which shelled corn is being soaked, and from which an odor, partly sour and partly hinting of an incipient albuminous decay, makes itself slightly manifest. In these the grain is kept until it becomes softened and swollen by imbibition of water, when it is passed out, to be ground into something about as fine as our common corn meal, and made into a creamy fluid by the addition of water.

From the stones where it is ground it is passed over sifting-cloths in constant motion, and constantly acted upon by streams of water, until it is supposed that all the amylaceous particles of the grain have been washed through, and nothing of value remains in the debris — at least nothing of saccharine value.

In another portion of the establishment one finds the starch-house, in which, caught in long troughs, slightly inclined so as to cause a gentle current over the sediment, the material just seen to have escaped from under the sieves is depositing its starch in layers upon the bottom of these long receptacles.

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Many of you who have seen starch made from potatoes in bad years, when these tubers threatened to rot, would be reminded of the starchy sediment from that process, by this sediment in the starch department. Here a cruel waste of material comes to light, and constantly elicits careful study at the hands of those engaged in the manufacture — viz., the escape, at this point in the process, of fat and albumen. In a factory like that at Davenport, it is estimated that about five thousand pounds of fat and twelve thousand pounds of albumen are daily carried into the Mississippi by the gentle currents that pass along these starch-troughs from the upper to the lower end — a quantity of nutritive material certainly well worth the attention of experts in the manufacture.

Starch, gathered up in layers of different thickness, from the bottoms of these troughs, is carried to the converting-tubs, where the action of diluted sulphuric acid at a proper temperature is kept up upon the substance, to various degrees of completeness as regards sugar production. Where the production of syrup is desired, this action of acid is allowed to go on only for a short time, in relation to complete conversion, and the fluid is removed from the converting-tub with only about fifty per cent of its starch changed to saccharine material, and the remainder left at the dextrine intermediate point, because of the danger of subsequent crystallization from the fluid if conversion is carried to greater limit. On the other hand, in manufacturing the solid product, the "hard glucose," the conversion is carried to a point where almost every particle of starch is changed, and the fluid readily crystallizes into the peculiar solid before spoken of, which, it is near enough truth to say, is absolutely pure glucose.

Subsequent to this conversion process comes a neutralization of the acid by the application of powdered carbonate of lime (marble dust); the evaporation to sufficient density, in immense vacuum-pans, at low temperature; the filtering and refiltering, through animal charcoal and through "press" filters, in which linen fiber is enlisted in the eradication of impuri-

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ties — and the product, solid or fluid, is complete, and ready for packing. It is, in short, our old, school-boy chemical experiment on an immense scale, with all the magnificent surroundings of steam and steam-driven machinery. The result has been, as with our experiment, and with the living tissue of plants glycogenic in nature, a hydration of starch.

This substance, with a chemical formula of $C_6H_{10}O_5$ — if the chemists know precisely how these organic compounds *are* made up — has undergone an addition of an equivalent of water, H_2O, and has become our liver friend, grape sugar, with a formula of $C_6H_{12}O_6$. It has gained slightly in weight, as one would suppose, from such addition, so that 99 parts of starch become 108 parts of sugar, or a gain of about nine per cent. Its taste, as represented in the syrups before mentioned, is far less sweet than that of cane syrups, for the reason before stated, that fifty per cent of the starch only has been completely converted, and the remainder arrested at the dextrine point. But even in the pure glucose this deficiency in sweetness is marked, and a peculiar element, difficult of description, unless it be slightly bitter, and perhaps due to partial caramelization, appears in its impression upon the tongue. As a matter of fact, its sweetening power in comparison with cane sugar is as 2 to 3. Without doubt the most nutritious of the sugars, it seems singular that it has received so much abuse at the hands of the public, and that its open consumption has not reached greater limits, for, even making due allowance for its deficient sweetening power, it must be cheaper than the cane product, since it sells at about two and a half cents per pound.

The common newspaper objection to it, with which most of you have probably met in wise circles, that it will "turn tea black," you will readily understand to be due to the small amount of iron which it acquires in the evaporation process and in its various contacts with iron piping, the tannin of the tea infusion producing the change in color. It is generally ascribed to the imperfect removal from the substance of the

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acid with which the conversion is made, and the sad effects of "vitriol" upon the system are brought forward as a warning to all whose temerity may lead them to tamper with so dangerous a compound. *You* need hardly be told that this is a bugbear, for, to ascribe no higher object to the complete neutralization of the acid, the manufacturer has too much regard for his vast system of perishable piping and evaporation machinery to allow any trace of acid to remain in the fluids which must pass through them; and the neutralizing material is very cheap. In reality, the most probable cause, of the common disrespect for glucose, lies in the fact that its manufacturers have never attempted to impress upon it any individuality as a marketable food substance, but have been content to allow it to be thrown upon the market under any name but its own, until it has become known only as an adulterant, and has suffered in character thereby. Perhaps it will *always* be impossible to sell it as syrup without an admixture of cane syrup, on account of the great lack of sweetness in this half dextrine fluid we have before seen, which tastes like sweetened mucilage; but certainly the solid product, fairly crystallized, might be safely sent into market upon its own merits, and would soon assert itself as a formidable rival of the cane derivative.

And now to the peculiar interest which we, as a profession, might find in the substance. At this point I must confess to feeling a little shamefaced, in having but one poor case in practice to bring forward as a reason for the faith that is in me, but you will remember that the object of the paper was to point out at present only a few theoretical indications.

I was called upon, over two years ago, by a young Davenporter who had been working at his trade — blacksmith — in Missouri, during the summer preceding. Everybody, he said, had been suffering from "chills," and he had had, from his description, a more than usually severe type of intermittent fever, which had finally yielded to medicines, but which had left him something of a wreck. You all know the type of

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patient — his face "saddle-colored:" his tongue pale; his spleen enlarged just enough so that one could call attention to the ague-cake prize he would shortly have drawn if he hadn't changed climate; his liver protruding below the normal line, with its edge thickened; and his general make-up that of profound debility and anæmia. The only distress approaching pain, of which he complained, was in the region of the liver, and there he spoke of a constant sensation of weight and fullness, and of an occasional increase of that into positive pain, even.

I shall not attempt any refined pathology here; it is probably sufficient to say that if any one thing can be positively charged to malaria as a cause, it is the tendency to congestions of internal organs, and the liver is the largest of all. It is not necessary here to say how important its position is as the gateway of the portal group of vessels, nor why such congestion could readily impair all digestive functions, and so prolong anæmic conditions. Neither is it desirable to dwell upon its functions longer than simply to indicate stepping-stones in a course of reasoning, as follows: Under the above conditions, the glycogenic function of the liver probably suffers extensively. We do not positively know what proportion of the glucose manufactured directly from starch in the process of digestion is *immediately* used in the bodily processes, and what proportion is stored up in the liver in the shape of glycogen, to be paid out as the wants of the body require; but we imagine that a large proportion goes in the latter direction, and that the liver's store-house or savings-bank action in this manner is very important. There is not a question in our minds about the great necessity for a constant supply of glucose to the tissues, and we notice the large size (proportional) of the liver in the fœtus as an indication of the necessity of glucose in the early growth of the economy. Suppose the obstruction at the portal center, before hinted at; suppose the consequent impairment of amylaceous digestion; and further suppose the impairment of the glycogenic function by in-

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creased pressure in the liver itself — then the following seems a fair inference: Ingestion of glucose at short intervals during the day will render the digestion of starch comparatively unnecessary; it may also put the glycogenic operations of the liver temporarily in abeyance. If it accomplishes the latter purpose, then it will be eminently useful in this case, for it is the "rest and pain" idea, the splint idea, applied to the liver, which is the key to the position.

Whatever you think of the logic, this was the result: The young man, I found, was not averse to eating syrup — in fact, had always liked it. We procured a supply of the liquid glucose, and he was directed to eat it freely at meals, and, when he felt that he could (his stomach was rather capricious), to indulge between meals. He stated that he did not like the syrup as well as the common cane syrups — it is not palatable — and so his consumption of it was not rapid — between two and three quarts the first week; but the scales, that week, showed a positive increase of seven pounds in weight, or one pound a day. He increased in weight the second week about three pounds, and less the third week; but his appearance improved wonderfully, his appetite and strength increased, and in a month, or thereabouts, he was able to work at that hard labor — horseshoeing.

I give the case for what it is worth — saying only that I do not think it wrong to say, *post hoc ergo propter hoc*, in the light of some little experience with that kind of cases. I think he found the syrup a highly nutritious substance, and that we gave the liver a rest from its labors. In similar cases I hope to hear of some trials of the substance, by some of you, with a view to confirming theoretical deductions, if the theory happens to suit you.

Another place, theoretically, in which the syrup might be employed, of course, would be one where the digestion of starch was impaired from any cause. If we regarded the average starch consumption as in the neighborhood of ten ounces of pure starch, we can figure, as produced from that, about

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eleven ounces of pure glucose; and, although the objection constantly arises to one's mind that the palate may rebel against something so unnatural as the starch already changed, an amount of sugar so small as that would seem easy enough of consumption in small quantities frequently repeated. At least it seems reasonable to suppose that any pathological condition, temporarily present, which impaired amyloid digestion, might be "flanked," so to speak, by giving all the organs interested in such digestion a vacation for a short time, as we imagined we did in the case of the liver before mentioned.

Another opportunity for its use, one mentions with some considerable hesitation, is that furnished by some of the wasting diseases of children. Hesitation here arises from the fact that this is the most readily fermentible of all the sugars, and that, in many of these cases, fermentation of food seems at the base of the troubles. But, in defense of the attempt to supply a highly nutritious material like this, even at the risk of exciting fermentation in the alimentary canal, one might say that a substance like this, requiring of that alimentary tract no digestion, but simply the physical process of absorption, promised rapid restoration and blood supply in about the same manner that it was promised by nutritive enemata, and was certainly worth a trial.

Further, we might add, with some misgiving, the conditions known as diabetes, as proper for a trial of food of this kind. I believe it is pretty generally conceded that *two* conditions are attended with an elimination of sugar by the urine — one in which the bodily standard is for a long time maintained at a fair position, and the other in which rapid emaciation and loss of strength are manifest. In the first it is supposed the *manufacture* of sugar by the liver is in excess of the quantity demanded by the tissues, and the elimination is simply a surplus; in the second, with only the natural amount furnished, the tissues are unable to assimilate the sugar, and it passes off. "Excessive formation," we are told, marks the one; "defective assimilation" the other. In the variety attended with excessive

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formation of course there may be a great variety of causative conditions, and any part of the nervous circle from the liver to the brain, and back again, may be the seat of the irritation, determining hyper-secretion. But in instances where the irritation has its seat in the liver-cells themselves, as in cases where alcohol, passing in by the portal vein, has originated the difficulty, it would seem as if the administration of some such substance, allowing of a subsidence of the glycogenic work of the organ, might work benefit.

In the *other* variety of the disease, which is often so harmfully treated by dietetic regimen, where all tissues seem unable to assimilate this material, and where great quantities of water must be drank and passed off in urine to dissolve it and wash it out of the economy, its use, of course, would seem like adding fuel to flame; but here, even, from its great nutritive value, a rational and carefully observed administration might be of benefit. There *must* be a place for it in diabetic cases, it seems to me — though here, I must confess, its claims are very weakly presented.

Not to drag this out any longer, it is the idea of the writer that this substance, now finding its way into our markets, will be useful to us in many cases of impaired nutrition — the limits of its usefulness lying within the lines we so often find circumscribing our attempts at restoring strength, of the ability of the digestive and assimilative mechanisms to properly appropriate it.

We have no end of constructives and nutritives of all sorts, which we give a fair field, and toward which we all lean kindly, from an asthenic idea of most of our diseases; and if we spend great amounts of money for various preparations of malt, whose only claim to our favor is that, by certain elements contained in them, such as diastase, or maltine, or what not, they accomplish, in impaired states of digestion, the change of starch into grape sugar, surely the sugar itself (always, of course, remembering the capriciousness of sick palates) might be fairly assumed to be a reasonable nutritive, and should be

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given a fair trial. It is ready to hand, is not unpalatable, can be procured at very cheap rates, and I hope many of you may feel inclined to experiment with it for our future information. It may have been made the subject of experiment before, but I have no knowledge of it, and, save the use of sugar candy—from cane sugar, of course—mentioned in Harley as having been tried in diabetes, I have no hint in that direction.

DISCUSSION.

Dr. Hazen, in confirmation of the value of glucose in enfeebled states of the system, related the case of a cadaverous-looking gentleman who consulted him, and for whom he prescribed glucose with the most happy results. His appetite, digestion, and general health improved rapidly.

XXXVIII.

PROGRESS AND PRESENT CONDITION OF MATERIA MEDICA AND THERAPEUTICS.

By John North, M.D., *Keokuk.*

Our Society is divided into eight sections or committees, each with its chairman. Our President has done me the honor to appoint me as chairman of the Committee on Materia Medica.

It would be impossible to confine my report to the progress of materia medica and therapeutics during the last year. Its progress is an accumulation of facts and experiments extending over years. The work of one year, alone, would show a very incomplete accumulation of facts. I shall not confine myself to the work done in this department of medical science for the past year, but will speak of the "Progress and Present Condition of Materia Medica and Therapeutics." Until within the last few years, materia medica and therapeutics have not

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been held in very high esteem by the medical profession. Great care was taken to have the chairs of anatomy, surgery, practice, and obstetrics filled with competent men in our medical colleges. The chair of materia medica was filled with some one who could lecture and fill in the time, without much regard to his ability to teach.

Times have changed very much in regard to the ability of the occupants of chairs of the medical sciences in medical colleges. They are now considered of as great importance as the chairs of practical medicine.

Bichat, in his time, said that "Materia medica is a shapeless mass of inexact ideas of observations, often purely of imaginary remedies, strangely conceived and fanatically arranged." At present, no subject is considered of greater importance in the curriculum of studies in medical colleges than that of materia medica and therapeutics. The great advancement in this department of medicine depends upon two principal methods — the empirical or experimental, and the physiological or scientific.

The first, or empirical, has been the method that brought therapeutics up to the standard of twenty or thirty years ago. The use of the remedy was ascertained from its action in a certain disease, an effort being made to find a drug for every disease. The physician, under this method, gave a remedy because it was recommended in that disease, regardless of its action upon the individual. Some drugs are very good for a particular disease, but they may be very hard upon the men, women, and children afflicted with that disease.

In the empirical method in therapeutics, the physician makes out the diagnosis for the purpose of giving the disease a name; having named the disease, then the drug used in *that* disease is given in full doses. This method was of great use in its time. Before the development of modern physiology, it was the only method we had of arriving at the use of drugs. It had no scientific basis, but depended upon experiments made with drugs. Unscientific as it is, we of the present time must not ignore this method altogether.

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The second method in therapeutics, or the physiological or scientific method, is founded upon scientific investigation as to the action of a drug when given to a patient in health. The physiology of an organ must first be thoroughly understood, then the drug is administered in small, medium, and large doses. The action or change it produces in the structure or function of the organ is closely observed; from this the physiological action of the drug is ascertained.

The modern physician makes his diagnosis not for the purpose of naming the disease, but to ascertain the abnormal condition, and he applies his remedy to that condition, regardless of the name of the disease. His diagnosis is a therapeutical diagnosis.

The study of the physiological action of remedies has done more for modern practice of medicine than all other things combined. The eighth edition of "Biddle's Materia Medica," published in 1878, followed the empirical plan; the edition of 1883 drops this plan altogether, and follows the physiological plan. The works of H. C. Woods, Jr., were among the first based upon the physiological method in therapeutics; then followed Bartholow and others, on the same plan. At present, it is almost impossible to find a work upon materia medica and therapeutics based upon the empirical or experimental method. Bartholow says: "On all sides the conviction is growing that the real and permanent advance in therapeutical art must be effected chiefly by the physiological method."

Materia medica and therapeutics is a very discouraging branch of study to the medical student when he is confronted with several hundred articles which he is expected to study up — the mineralogy, the metallurgy, the chemistry, the botany, the pharmacy, etc. — before he comes to the use of the medicine in the healing art. Materia medica must be studied in relation to the healing art, and be pruned of a great many things attached to it, before it becomes an entertaining branch of study.

At the present time it is not necessary for the physician to

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be a botanist. Before the vegetable remedies reach the hands of the physician they have passed through several hands, and have lost all of their botanical characteristics. If we take any drug from the vegetable kingdom — rhubarb, for example — we have, first, its botanical name; next, the oxygen, natural order, source, botanical description, etc. — a knowledge that is not necessary for the physician. It would be well enough for the physician to understand the botany of the drugs used, but it should be a part of his preliminary studies.

If the substance under consideration is an inorganic remedy, of what use to the student of materia medica is its chemical symbol, history, occurrence and distribution in nature, means of reducing it from its native condition, process of manufacturing its compounds, their chemical formulæ, and writing out the chemical equation taking place during their preparation? The subject of general chemistry is one of great importance, and indispensable to the physician, yet it does not constitute a part of the *healing art*, and should be a part of the preliminary study of each medical student. The time spent at medical colleges should be devoted to physiological chemistry, which can only be understood by one well posted in general chemistry.

When a young man starts to learn the carpenter's trade, he is handed a plane, is told its name, its general use; but it is not expected that he should study up the botany of the tree of which the plane is made; neither is he expected or required to understand the mineralogy and metallurgy of iron, nor the chemistry of its formation into steel.

Great progress has been made in the convenience and palliableness of medicine. The manufacturing pharmacists prepare almost all our preparations in so convenient and pleasant a form that the objectionable taste is completely covered up — and sometimes the virtue of the remedy is also covered up. Our concentrated forms of medicine, our sugar and gelatine coated pills, capsules, etc., make the taking of medicine almost a pleasure compared to the old method of administration. It is our duty to prescribe medicines that are pleasing to the eye

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and taste when we can accomplish the same end as by unsightly and nauseating doses.

There is a great tendency to use the active principle of vegetable drugs, instead of the preparations of the drug. The active principle may be an alkaloid, a glucoside, or some other substance with a molecular composition. It is an excellent method when the drug contains some one active principle upon which the virtue of the plant depends. A great many of the so-called active principles of vegetable substances are the result of chemical changes taking place during their extraction, and do not preëxist in the vegetable, and, consequently, do not represent the therapeutical use or action of the drug. If the plant contains more than one active principle, then the use of any one does *not* represent the entire medicinal properties of the drug. One great advantage in the administration of the alkaloids is on account of their concentrated form, and can be administered in much smaller doses than any of the preparations. A convenient form is as *triturations.*

A great change has taken place in regard to the size of the dose of drugs. The doses as given in the books were at one time taken as fixed quantities. This is now taken as the dose to start with. I am satisfied that the doses as given in our books are too large. The size of the dose depends altogether upon the effect we wish to produce with it. We frequently find that a small dose has just the opposite effect of a large one. Different persons, in like and unlike circumstances, are very differently affected by a medicine administered in the same dose. The quantity of the dose must be adjusted to each individual case. Some physicians are using very small doses of medicines, going to the extreme in dosage. Dr. John L. Davis, of Cincinnati, says that with small doses the physiological action of the remedy is more quickly secured, and a less amount of medicine is required.

For some time I have been giving small doses of some medicines with good results. I will give some of my experience in small dosage: I find that I can control the fever process

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much quicker with one-drop doses of tincture of aconite every hour than with larger doses; one-fourth drop every fifteen minutes will relieve fever. Tonsilitis, pharyngitis, and all simple inflammatory throat troubles very readily yield to tincture aconite in drop doses every hour, or one-fourth drop every fifteen minutes. One drop of tincture of aconite and one grain of iodide of ammonium, every hour, will "break up" a "bad cold," often, taking a few doses. Five to ten drops of fluid extract of cascara sagrada, three times each day, will relieve most cases of habitual constipation. Chronic diarrhœa is frequently relieved by the administration of five-drop doses of fluid extract of cascara sagrada three times each day. One-tenth of a grain of aloin, three times each day, will relieve habitual constipation. Atropia has relieved more cases of sick headache than any remedy I ever used. The one-hundredth of a grain, at one dose, gives me relief in a short time; one one-hundredth of a grain, given in four doses, ten minutes apart, is my usual method of administering it. I can obtain all I wish with arsenic in the one-hundredth of a grain of the so-called arsenous acid (white arsenic), equal to one drop of Fowler's solution, in all stomach and intestinal troubles. A very convenient method for administering atropia and arsenic in small doses is in form of one per cent triturations. Two drops of the tincture of gelsemium, every ten or fifteen minutes, will give relief in a great many cases of neuralgic headache and neuralgia of the fifth pair of nerves. I have found the bichloride of mercury, in doses of one-hundredth of a grain, of great use in acute dysentery and in all bowel troubles when blood is found in the passages. I am convinced that we have a specific for primary and secondary syphilis in mercury, if not in the tertiary condition. I give my patients one-hundredth of a grain of the bichloride of mercury three times each day, in all stages of syphilis, and they all improve. A large proportion of the cases that come to us to be treated for tertiary syphilis are not suffering from syphilis, but from *chronic mercurial poisoning*. If we take a case of syphilis that has run through the primary and secondary stages and on into

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the tertiary stage, unaffected by treatment, and compare it with a chronic case of mercurial poisoning, it is almost impossible to distinguish one from the other. Small doses of mercury will cure the case of tertiary syphilis, but will have no effect upon the chronic mercurial poisoning. Iodide of potassium will be necessary in this case. Large doses of mercury cause a destruction of the red corpuscles of the blood; small doses will cause an increase in the number of the red corpuscles. I find no better treatment for anæmia, especially in chlorotic girls, than one-hundredth grain of bichloride of mercury.

Great progress has been made in the use of electricity during the last few years. We have three kinds of electrical currents, differing from each other in their action and in their uses — namely: static, galvanic, and Faradic. A great many years ago, an effort was made to introduce static electricity to the notice of the profession; but, with the poor machines then in use, it was soon discarded. Within a few years, new and improved machines have been introduced, which have brought static electricity to the front again as a therapeutical agent. I have had one of Quen's Topler-Holtz machines in constant use for nearly four years, with excellent results. Local pain, as neuralgia, rheumatism, etc., is quickly removed by the spark. One application will relieve sciatica, and daily treatments for a few weeks have given permanent relief in every case I have used it in. As a tonic and stimulant, it is far superior to any other form of electricity. One great advantage over all other kinds of electricity is that it is not necessary to remove the clothing to make an application. It produces an electricity of high tension. By taking a current from the outside of one Leyden jar and the inside of the other, we can get an interrupted current which gives more muscular contraction, with much less pain, than with the Faradic current. The machine generates a large amount of ozone, which may have something to do with its good effects.

Time will not permit me to say more of static electricity. With a great many physicians, electricity is electricity, with

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much quicker with one-drop doses of ti[illegible] rrent. hour than with larger doses; one-f[illegible] xcept, minutes will relieve fever. Tons[illegible] a great simple inflammatory throat troub[illegible] ne cur- ture aconite in drop doses ever[illegible] quinine fifteen minutes. One drop of [illegible] and Neu- of iodide of ammonium, e[illegible] cold," often, taking a fe[illegible] says: "A extract of cascara sagr[illegible] and neuro- most cases of habitu[illegible] deduced from quently relieved b[illegible] —viz., that, while de- fluid extract of c[illegible] vessels of the encephalon, tenth of a gra[illegible] scending currents from neck to fore- habitual cons[illegible] nd it is well also to bear in mind Lowen- headache [illegible] sertion, that cross-currents dilate on the side of a gra[illegible] and contract on that of the cathode, while induced one-hu[illegible] in any direction cause hyperæmia cerebri. These apar[illegible] may also be satisfactorily proven by personal experimen- all [illegible] and the failure to appreciate them is at the foundation [illegible] ill success of so many who have attempted to employ [illegible] electrization for therapeutic purposes and discarded it. It has not, in these instances, been the electric current which has been at fault, but the operator, who has misdirected it. It is as valuable a servant, when skillfully used, as the surgeon's knife, and we should not condemn it because in unskillful hands it may prove equally unsafe and unsatisfactory." In the treatment of paralysis, far better results have been obtained with the galvanic than with the Faradic current.

Under the head of therapeutical uses of remedies, I wish to call attention to the use of fluid extract of chestnut-leaf in the treatment of whooping-cough. When given in the second stage, it will arrest the paroxysms within twenty-four to fifty-six hours. If given in the catarrhal stage, it seldom passes into the spasmodic stage, and then it is only very mild. I administer it to children of all ages, in doses of fifteen to sixty drops of the fluid extract, four times each day. When prescribed in syrup, it is very pleasant.

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oride of cocaine is a new remedy that has sud-
ne to the front as a local anæsthetic. It is a great
ition to our materia medica. So much has been said about it in the journals, that I will pass it by.

Tripsin is one of the ferments of the pancreatic juice. It is very highly spoken of as a solvent of the false membrane of diphtheria. It is applied in solution with a spray every fifteen minutes.

Permanganate of potassium, in doses of one to two grains three times each day, is very highly spoken of in the treatment of amenorrhœa, especially when produced from cold, commencing several days before the time for the appearance of the menses. Drs. Ruiger and Munell report sixty-nine cases treated with the permanganate with good results. I have used it in a few cases.

Austin Flint, Jr., reports a number of cases of diabetes mellitus treated with Clemens' solution of arsenite of bromine, in three to five drop doses, three times each day before eating. The excellent results he has obtained have attracted a great deal of attention in the profession.

Antipyrin and kairin are two remedies that are now before the profession with claims of great power as antipyretics. They both reduce the temperature when given in full doses. Antipyrin is given in doses of fifteen to thirty grains; kairin in two to seven grains. When administered together, they seem to produce more satisfactory results.

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SECTION ON SANITARY SCIENCE AND HYGIENE.

XXXIX.

REPORT ON SANITARY SCIENCE AND HYGIENE.

By R. J. Farquharson, M.D., *Des Moines.*

As chairman of the Committee on Sanitary Science and Hygiene, I have the honor to present the following report, which will contain a brief account of the progress of these branches of knowledge during the twelve months since the date of our last meeting:

IOWA.

Commencing at home, and reversing the proper chronological order, we will first consider the recent legislation in regard to sanitary matters:

1. The first for consideration is the act preventing the transportation, in railroad cars, steamboats, or other public conveyances, of persons sick with small-pox, scarlet fever, or diphtheria. The necessity of some such law has been long felt by all cognizant of the fact that parents frequently transport children sick with scarlet fever in the crowded cars, and even health officers have been accused of passing the paupers ill with small-pox, by means of passenger trains, to other and more hospitable quarters.

2. The act creating the office of State Veterinary Surgeon, and adding him to the State Board of Health, is one of great sanitary interest, not only to the agricultural community, but to the whole human family, considering the variety of diseases we get from our domestic animals, the frequency of their oc-

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currence, and the fatal nature of some — as glanders, rabies, and anthrax.

3. The act providing for an efficient inspection of petroleum oils is one of the most important sanitary measures ever passed in this State. This law, if properly executed, will not only give a comparatively safe oil for domestic illumination, and an absolutely safe one for the lighting of all cars and steamboats, but will, incidentally, save many thousands of dollars annually, from the fact that under it the people will know by the official brand the quality of the oil they are buying, and not, as heretofore, be paying several dollars more per barrel for oil falsely branded 175 degrees fire test, when really it burns at 130 degrees Fahrenheit. Michigan, by a similar system of inspection, continued since 1873, has driven out all the dangerous oils to such an extent that accidents from the use of kerosene are almost unknown. By the passage of this law, Iowa has placed herself in the front rank of the more advanced States, for, though some eighteen States have inspection laws, only seven have adopted the flash test, and of these only five — New York, New Jersey, Michigan, Wisconsin, and Iowa — use the most approved instrument, a closed tester. But two States — Indiana and Wisconsin — have yet adopted the gravity test, which for Indiana is 46 degrees Beaume; the Wisconsin gravity test is for the oil to remain clear after ten minutes exposure to 20 degrees Fahrenheit. The discovery of the great depots of petroleum in this country has not proved by any means an unmixed good, for, without considering the vast destruction of human life (50,000 in a little over two decades), the loss of property from fires has been estimated to amount in value to at least one-fifth of the total value of the petroleum product. Besides this, it crushed out an important and increasing industry, which, by distillation, was producing from the cannel coal in this country a perfectly safe and a comparatively cheap oil for domestic illumination. But we have the consolation of adding that there are indications of the exhaustion of the petroleum supply, it having increased in gravity 16 per cent.

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The above-mentioned laws are of direct sanitary interest, and emanated from the State Board of Health.

Of other bills passed, of sanitary interest, may be mentioned the following, viz.: The act to "regulate mines and mining," which provides for the safety of miners by separate outlets and insured good ventilation, and prohibits the working of children under twelve years of age. The act prohibiting the sale of fire-arms to minors, if it directly or by implication includes toy pistols, will prove a great blessing to parents and children.

Of the bills which failed to become laws, perhaps some instruction may be had from a brief notice. The bill of amendments to the Board of Health Act, carefully prepared by the Attorney-General and the legislative committee of the State Board, was one of those unfortunate bills. It contained a clause of vast importance, attaching a penalty to the non-registration of physicians, which was omitted in the original bill. Of the fully 4,000 physicians (3,035 by United States census of 1880), only 2,489 physicians and 455 midwives are registered. Of the vital importance of a thorough registration of the physicians of this State, it would seem but a waste of words to speak to an audience of educated medical men. On this subject Dr. J. S. Billings, U. S. A., a master of sanitary science, says (American Journal of Medical Sciences, January, 1883, p. 46): "All registration acts which are upon a proper basis presuppose also legislation providing for the determining of those who are properly qualified physicians, and for making the names of these known to the registrar. It may be said, therefore, that the registration of vital statistics depends for its efficiency, to a very large extent, upon some system of registration of physicians and midwives." A carefully prepared bill against the adulteration of food, in its principles like the laws of Massachusetts, New York, and New Jersey, the form of which came from the National Board of Health in 1881, failed to become a law — an event to be regretted, since the present law is a dead letter. As you are all aware, the Medical Practice Act came to an untimely end in the Legisla-

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ture. Of the importance of some such law all medical men seemed to be of one mind, and the little consideration it received at the hands of the legislators was therefore a matter of surprise to many.

The State of Iowa has, during the past year, had no epidemics, and I have no doubt but that the mortality was somewhat below the normal rate. I would, however, desire to call the attention of this Society to one disease which, although never epidemic (or, at most, so only in restricted localities), causes a great many deaths — indeed, leads all others in this State — and that is diphtheria. In the first registrative report (for the year ending October 1st, 1881) it is remarked: "If to the 914 deaths by diphtheria were added 214 by croup (in a great majority of which cases the latter was but the final stage, or mode of death. of the former disease), we have a grand total of 1,128, or more than ten per cent of the total deaths of the State; thus showing that in diphtheria we have, by long odds, the most important and the most fatal disease." Last year (1883), in the cities of the United States, diphtheria (including croup) caused only three and one-half per cent of the total deaths reported (Sanitary Engineer, February 21, 1884). It is certainly deserving of the earnest endeavor of the medical profession to check the frightful ravages of this disease; and the futility of its treatment would seem to indicate prevention as the only reliable means to this end. Whenever the people are taught the true nature of diphtheria — that it is as catching and far more deadly than small-pox — great progress in the right direction will have been made. The Iowa State Board of Health has printed and distributed many thousand copies of a tract teaching the above doctrine. The hope and the inference is that these tracts do good. That this inference is a fair one, the following quotation would seem to show: "There were reported in Michigan, in the year 1881, something over two thousand deaths from diphtheria. In October, 1881, the State Board of Health of Michigan began to distribute, in large quantities and in various languages, docu-

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ments on the restriction and prevention of diphtheria. The distribution of these documents was continued throughout the year 1882. In that year the deaths from diphtheria reported were about fourteen hundred. There were not as many deaths reported from all causes as in 1881, to be sure, but the proportion of decrease in 1882 as compared with 1881 was much greater in deaths from diphtheria than in those from all other causes. That this vast decrease of nearly thirty-three and one-third per cent is due, in a great measure, to the distribution of these recommendations, there is no doubt." (Sanitary News, April 1, 1884, p. 132.)

In this State there is a progressive, if not rapid, advance in sanitation, as shown by the increase in the number of local boards of health. By law there is one of these in every township, and the law is imperative in the matter of the action of the township trustees as boards of health. Nevertheless, up to October 1st, 1882, of 363 cities and towns, only 59 had reported contagious diseases, and of 1,589 townships, only 343 had reported the same. I think it may be safe to assume that now (May, 1884) 300 of the 363 towns and cities have regularly organized boards of health, and of the 1,589 townships over 1,000 have the same.

Twenty-two cities and towns in Iowa are now supplied with water by regular water-works. Of these, fifteen use river water, one surface water, four wells, and two ground-water.

STATE BOARDS OF HEALTH.

Thirty States now have State boards of health, which, with the Secretaries' names and addresses, are as follows:

Alabama — Dr. Jerome Cochran, Mobile.
Arkansas — Dr. J. A. Dibrell, Jr., Little Rock.
California — Dr. F. W. Hatch, Sacramento.
Colorado — (Disorganized).
Connecticut — Dr. C. W. Chamberlain, Hartford.
Delaware — Dr. William Marshall, Dover.

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Georgia — Dr. V. H. Taliaferro, Atlanta.
Illinois — Dr. John H. Rauch, Springfield.
Indiana — Dr. E. S. Elder, Indianapolis.
Iowa — Dr. R. J. Farquharson, Des Moines.
Kentucky — Dr. J. N. McCormack, Bowling Green.
Louisiana — Dr. S. S. Herrick, New Orleans.
Maryland — Dr. C. W. Chancellor, Baltimore.
Massachusetts — Dr. S. W. Abbott, Wakefield.
Michigan — Dr. Henry B. Baker, Lansing.
Minnesota — Dr. C. N. Hewitt, Red Wing.
Mississippi — Dr. Wirt Johnston, Jackson.
Missouri — Dr. J. C. Hearne, Hannibal.
New Hampshire — Dr. Irving A. Watson, Concord.
New Jersey — Dr. Ezra M. Hunt, Trenton.
New York — Dr. Elisha Harris, Albany.
North Carolina — Dr. Thomas F. Wood, Wilmington.
Oregon — (Not yet appointed).
Rhode Island — Dr. Charles H. Fisher, Providence.
South Carolina — Dr. Henry D. Frazer, Charleston.
Tennessee — Dr. C. C. Fite, Nashville.
Texas — Dr. R. N. Swearingan, Austin.
Virginia — —— ———, ———
West Virginia — Dr. James E. Reeves, Wheeling.
Wisconsin — Dr. J. T. Reeve, Appleton.

These boards are of various kinds and degrees, having different grades of power — from Texas, where the State health officer is an autocrat, through the ordinary State boards, down to State medical societies nominally acting as boards of health, but having really no powers and no money.

From recent inquiry, I learn that of twenty-one States having real boards of health, thirteen have executive powers and eight have not — *i. e.*, they act entirely through the local boards — Iowa being in the latter category.

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STATES HAVING LAWS REGULATING THE PRACTICE OF MEDICINE.

NO.	DATE.	STATE.	NO.	DATE.	STATE.
1	1877	Alabama.	16	1883	Missouri.
2	1881	Arizona.	17	1881	Nebraska.
3	1881	Arkansas.	18	——	New Hampshire.
4	1876	California.	19	1882	New Jersey.
5	1881	Colorado.	20	1882	New Mexico Ty.
6	1883	Delaware.	21	1880	New York.
7	1881	Florida.	22	1871	North Carolina.
8	1881	Georgia.	23	1880	Ohio.
9	1877	Illinois.	24	1881	Pennsylvania.
10	1879	Kansas.	25	1881	South Carolina.
11	1874	Kentucky.	26	1879	Texas.
12	1882	Louisiana.	27	1880	Vermont.
13	1883	Michigan.	28	1882	West Virginia.
14	1883	Minnesota.	29	1881	Wisconsin.
15	1882	Mississippi.	30	——	Wyoming Ty.

But it may be said that in most of these States the law does not amount to much, the only States having good laws on this subject being Illinois, Missouri, and West Virginia; and even in these States the law is emasculated by the exemption clause of a fixed term of residence and practice.

In the Dominion of Canada, the following provinces have effectual laws, all enacted in 1881: Manitoba, New Brunswick, Nova Scotia, Ontario, and Quebec.

It will thus be seen that of local boards, the ground-work or foundation, and of State boards, the superstructure, we have enough; but, pitiful to say, yet truthful, the national board, the roof which should bind together, protect, and adorn the whole structure, is wanting. Such a board we had for some years, and nobly did it do its work, which, in the words of one of its members, was: "*1st*, to investigate the causes and methods of prevention of domestic pestilences, wide-spread among the States and Territories, and aid local authorities in their suppression; *2d*, to prevent the introduction of foreign pestilences into the country, and their spread from one State to another, by coördinating the operations of State boards and coöperating with them; *3d*, to examine and determine public health questions of international importance." (Dr. Stephen

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Smith to Committee on Public Health from House of Representatives.) Through the agency of a wretched cabal originating in a department of a coördinate branch of the government, Congress was induced to destroy this efficient protection to the whole country by cutting down the means to a contemptible pittance; since which time it is endeavoring vainly to supply its place by several devices, none of which have much chance of success. One plan is to have a national board composed of the Surgeons-General of the army, navy, and marine hospital service. Now, this would not work, for the simple reason that these gentlemen have, or ought to have, enough legitimate employment in their respective offices to take up all their time. Though personally, and from experience of its benefits, an admirer of autocratic power and undivided responsibility in matters of administration, I cannot remain blind to the teaching of history, which records the many achievements of boards and commissions: witness, that mighty institution, the British navy, whose affairs have been managed by a commission, I think, since the time of Charles II.

SANITARY COUNCIL OF THE MISSISSIPPI VALLEY.

This organization is the offspring of the epidemic of yellow fever of 1878, coming into existence in 1879, and is composed of delegates from State boards of health and other sanitary organizations, and its object is to promote inter-state sanitation and to prevent the spread of epidemics. Its principal duty has been to watch the Louisiana State Board of Health, which, under our singular quarantine laws, claims and exercises the right of guarding the mouth of the Mississippi River, but which, in the discharge of this most important duty, never had the confidence of the other States in the valley. Last summer, after the lapse of the National Board, the duty of river inspection, etc., was taken up and continued by the Council of the Mississippi Valley, and with such success that at the last meeting (March 21st, 1884) it was resolved to continue this work during the present summer.

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Of course no paper can be considered complete which omits all mention of bacteria. As I have no doubt these minute individuals will receive proper attention from the authors of papers in this and the other sections of the Society, I will confine myself to a brief summary of the most recent discoveries in the life history of one of them — the bacterium choleræ — from whom we may have a visit this summer, and with whose peculiarities we should be familiar, in order to give him a proper reception.

CHOLERA COMMISSIONS.

Last summer, at the period of decline of the epidemic of cholera in Egypt, two commissions arrived in that country, one from France and the other from Germany— the latter under the leadership of the celebrated Professor Koch. The French commission did not remain long, but, after losing one of its members from cholera, returned to France, and reported, among other things, the discovery of a peculiar microbe in the blood and tissues, which they thought might prove peculiar to, and possibly the cause of, the disease. In this idea they were mistaken, for the peculiar microbes, as proved by the so-called blood-plates, had been already described and found in various diseases, and even in the healthy blood of man. As we all know, cholera was one of the first diseases whose characteristic symptoms were most readily explained by the germ theory. Indeed, it was Dr. Cowdell's idea that cholera was due to a peculiar fungus found in the rice plant in India. That (1848) was the starting-point of the present germ theory. But the number of bacilli found in the discharges were not only too numerous, but of perplexing variety. Lebert (Ziemssen's Cyclopædia, Vol. I., p. 167, article "Cholera") says on this subject: "The difficulty of directly demonstrating a cholera parasite is certainly a great one. It is almost certain that it belongs to the proto-mycetes; but, unfortunately, so many other similar formations, normal and innocent in their nature, are present in those parts in which cholera exercises

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its chief effects — for instance, in the gastro-intestinal tract — as to render the solution of the question exceedingly difficult."

Now, Koch had found a peculiar bacillus in some intestines of persons dead of cholera in India, which had been sent to him, in Berlin. Such he found again in Egypt, upon the surface of the valves of the intestines, and "where they had penetrated the utricular glands of the mucous membranes of the intestines and had caused there considerable irritation." These he succeeded in isolating from the tissues, in straining them, and also in cultivation; but he failed entirely to communicate the disease, either by inoculation, injection, or ingestion, though used in a variety of animals, including monkeys and fifty white mice, brought from Germany especially for this purpose, thus refuting Thiersch's celebrated experiment, which had been apparently confirmed by Burdon-Sanderson. This is about the sum and substance of what was achieved by the German commission in Egypt. Koch then went to India, first to Bombay and then to the birthplace of cholera — the delta of the Ganges — Calcutta. Here, as shown in his fifth report, he dissected several bodies of persons who had died of cholera and the same number of those who had died of other diseases, finding and isolating the same bacilli as in Berlin and Egypt — a specimen of which, by the way, was found in a water-tank.

The commission also studied, as far as possible, the relations of cholera to the city of Calcutta, and found that previous to 1870 (when a supply of good drinking-water was introduced) the average yearly mortality of Calcutta from cholera was ten and one-tenth per thousand. Since 1870 it has fallen to three, or more than threefold. In his sixth and last report, Koch says that the question whether the bacilli found in the bowels of cholera patients are parasites belonging exclusively to cholera may now be looked on as settled in the affirmative.

The distinguishing character of these bacilli is that they "are not quite like a straight line, as other bacilli, but a little curved, like a comma. This curving may even be so marked

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that the bacilli assume almost a semi-circular outline." "It would certainly be very desirable to succeed in producing in animals artificially, with these bacteria, a disease analogous to cholera, so that their causal relation to cholera might receive ocular demonstration." But all attempts, however, directed to this end, have failed in India, as elsewhere. Koch, however, adds: "Nevertheless, the demonstrative force of the facts given above is not weakened by the failure of the experiments on animals. The same phenomenon meets us, also, in other infective diseases, as enteric fever and leprosy — two diseases in which specific bacteria undoubtedly occur, but which hitherto no one has succeeded in conveying to animals."

In regard to the well-known fact of the frequent infection of washer-women from the soiled linen of cholera patients, it was found by experiment that whenever cholera dejections or the intestinal contents of cholera cadavers were spread upon linen or blotting-paper, kept moist, and especially upon the surface of damp soil, in twenty-four hours the thin film of mucus was invariably found to be completely converted into a thick mass of cholera bacilli. Drying kills them in three hours. They require an alkaline fluid for cultivation, being killed by acids. For this reason, they are never found in the intestines of animals to whom they are freely fed, having been killed by the acid of the stomach, and digested. I need not go into any details in regard to the proper mode of preparing for the proper reception of this unwelcome visitor; it is all embraced in one word — cleanliness.

DISINFECTANTS.

Apropos of germs, a few remarks may be permitted on the recent investigations into the actual power and relative value as germicides of the various therapeutic agents commonly used as disinfectants. The sanitary authorities of Berlin have recently published a code of disinfection regulations for that city. These are founded upon the researches of Koch, which confirmed those of Sternberg, in this country, in promoting

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corrosive sublimate to the head of the list of active germicides, the latter having shown it to be efficient in a solution of 1 part in 2,000. I shall not take up your time with the details of the Berlin code, but content myself with quoting the principal points in regard to cholera:

1st. Cholera patients should never be transported in public carriages; it should be done by the sanitary police (in ambulances).

2d. The bodies of persons who have died of cholera should be removed as soon as possible, first being wrapped in cloths impregnated and wet with a solution of corrosive sublimate (1 to 1,500).

3d. Before sending clothing, bed-linen, and other articles that can be washed, from cholera patients to the laundry, they should be wrapped (without shaking or brushing) in cloths impregnated with a solution of corrosive sublimate and boiled half an hour in the lye-soap solution (half an ounce of black or soft soap in ten quarts of tepid water).

4th. Articles which cannot be washed, such as beds, pillows, mattresses, bed-coverings, draperies, and carpets, must be covered with cloths impregnated with corrosive sublimate, and disinfected by heat or steam.

5th — Special Directions for Cholera. The manner in which cholera is conveyed is not certainly known. It is quite certain, however, that in certain cases the disease is conveyed by the intestinal discharges. Rooms occupied by cholera patients should be thoroughly ventilated and subjected for several days to carbolic acid vapors. Especial care should be taken that no one eats or drinks in the room, and that no food is placed therein. The directions for disinfecting articles of clothing, etc., have already been given. The evacuations should be received in vessels half filled with a solution of corrosive sublimate. Cholera patients should not use water-closets; but if this has been done, the closet should be thoroughly disinfected and the seat thoroughly washed with a strong disinfecting solution.

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Two features of the Berlin code are to be remarked:

1st. The prominent position given to, and the high recommendation of, black soap as a disinfectant—a place which it never occupied before, and which must owe its virtue as such to the excess of caustic potash which it contains. In Sternberg's scale, caustic potash is near the foot, requiring a ten per cent solution to kill germs.

2d. No mention whatever is made of our old favorite, copperas—ferric sulphate. This accords with Sternberg, who says that it has little power as a germicide, and owes that little to the excess of sulphuric acid. But it is nevertheless of great value in sanitation, and its common use is justified, for, though it does not kill the germs, even in a saturated solution, yet a solution of six and one-half per cent (1 to 200) prevents their development.

"Evidently therapeutic value—assuming the correctness of the germ theory—cannot be gauged by germicide power alone, for it is possible that an agent which possesses this power in but slight degree, or not at all, may nevertheless be capable of *restricting the development* of pathogenic organisms, and thus limiting their power of mischief." (Sternberg, American Journal of Medical Sciences, April, 1883, p. 333.)

XI.

SCHOOL HYGIENE, ETC.

Dr. Robertson, of Muscatine, being called upon for his paper on the above subject, said that he was not aware before that a paper was expected of him at this meeting, and, therefore, had prepared none. But, in lieu of such paper, the Doctor gave a short talk in regard to school hygiene, and in connection therewith reported several cases as characteristic of a class that are constantly being brought to the physician's

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notice from our hot-houses of learning. His patients were pale, anæmic, debilitated, etc., which he attributed to over-study, imperfect lighting, heating, ventilation, and construction generally of school-houses.

DISCUSSION.

Dr. Chase was much interested in school hygiene, and suggested that Dr. Robertson prepare a paper on the subject for a future meeting.

Dr. Williamson thought it an important subject; that the youths of our land are suffering from overstrain of the nervous system, to the great detriment of the physical body. The work put upon them is too excessive. The board of health can do no better work than to consider this subject and devise means for the relief of the rising generation.

Dr. McNutt. — The subject of school management and hygiene is worthy of our consideration, for upon it depends the well-being of future generations, physically as well as mentally. The multiplicity of studies, and the cramming process by which they are forced upon the student, are working great evils, mentally and physically, to the youth of the present generation. Too many books, too many studies, too many hours of study, thwart the very object for which they are intended. To learn to think is the great object to be sought in developing the mental powers, and the thoughts of others must not be passed before the mind so rapidly that there is no time to digest, analyze, or assimilate the mental food offered in such profusion. My experience is, beware of the man of few books, for in all probability he comprehends all that is before him, and thinks much. Fewer studies well carried out are superior to many superficially run over. My first two boys I pushed at an early age at school, and thought they would excel; but they failed. The younger are doing better by not being crowded. The best brains are of slow development.

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DR. GILMAN. — This is an old question, yet it is still in as bad shape as ever. The school-house and mode of teaching are very bad. The cramming process frequently wrecks the nervous system. If school superintendents can receive some suggestions from this Society, they may have a good effect. I hope some resolutions can be adopted in reference to the matter, calling the attention of superintendents to the objections entertained by this body, which is certainly as high authority on matters of hygiene and health as our commonwealth knows.

DR. JENKINS.—One point in connection with this subject deserves more than a passing notice, and that is in regard to the construction of school-houses. They are frequently built too high. Girls must climb too many stairs during the period they are developing into womanhood, and from this source is frequently laid the foundation of many uterine ailments. Boys have more out-door exercise, and are more robust; besides, they have no uteri to be injured. In Iowa, where ground is cheap, there is no excuse for building so high. No school-house should be over two stories high.

Dr. Von Mansfelde (of Nebraska) took exception to the doctrines maintained by the speakers generally, that many studies and many hours of study were injurious, but claimed that our methods were defective. We had not enough relaxation combined with study. He maintained that in Germany children knew more at an early age than here, and enjoy good health at the same time. The methods here are pernicious. Children sit too long in school-rooms, and when out the girls are restrained from exercising the same freedom that the boys do. At home the girls are not allowed to go out-doors and romp and play, as are the boys. If this freedom were permitted the girls, they would be no more delicate than the boys; they would not be mere dolls.

Dr. Hillis does not believe in the cramming process in teaching, no matter what the age of the student — though

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university students are not so liable to injury from prolonged mental labor, on account of their more mature years.

DR. MCCLURE. — The subject is as important a one as any that can engage our attention. While there are many defects in school-buildings, yet children have too much mental work. Six or seven studies are carried along at a time — a constant din from morning until night. After one has arrived at the age of twenty years, he can go through with much mental labor; but there is altogether too much hard, mental work at an early age. Health boards should look into this matter.

XLI.

BOARDS OF HEALTH AND CONTAGIOUS DISEASES IN IOWA.

BY S. B. THRALL, M.D., *Ottumwa.*

At the request of the chairman of the Committee on Medicine, I furnish a brief article for your consideration — one that may simply serve as a text for discussion and bring forward the personal opinions and experiences of members present. In thinking over the almost illimitable field of subjects of interest in medicine, it occurred to me that I could not meet the indications of the times better than by making brief remarks on the management of some contagious diseases, and what the medical profession of the State should do in reference thereto, also in their obedience to the law establishing a State board of health, and compliance with the regulations of said board relative to contagious diseases. I believe the subject will be one of practical interest and utility, not only to the medical profession, but to every intelligent citizen of the State. How to guard against, and prevent the dissemination of, preventable disease is of more importance and greater benefit to humanity than how to medicate and treat individual cases of such diseases. The educated medical practitioner

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has here his opportunity, as an effective conservator of the public health, to teach the public that there is a vast difference between the properly qualified physician and sanitarian and the incompetence of ignorance, however loudly or plausibly and cunningly the presuming charlatan may parade his boasted learning and ability. Proper management of such contagious diseases as scarlet fever and small-pox, that the public may be in the best manner protected, is a crucial test between the properly qualified physician and the ignorant or careless and incompetent practitioner. It behooves these, the able physicians of Iowa, each in his own locality, to step forward to the front, a united and intelligent power, for the conservation of the public health. The law-making power of Iowa has furnished us ample ground on which to stand, and if we fail to occupy and utilize that position for the public good, we are derelict in our duties in that we fail to promote "the usefulness, honor, and interests of the medical profession" — something that we all promised to do when we received the honors and accepted the responsibilities of a diploma. "In every city, town, or township in the State there exists by law a local board of health." In the portion of the State in which I reside, so far as my observation extends, not one-fourth of such boards have ever been organized, or, if so, it has been only a mere formal, apparent compliance with the law, nothing further having been done, and, so far as practical benefit is concerned, has amounted to nothing. I think the reason of that is that township trustees and town councils are, as a rule, composed of men who are absolutely ignorant of all sanitary matters, and they make no effort to comply with the law when they cannot see wherein there is any benefit, and they rather regard it as a troublesome superfluity attached to offices created and designed for other duties; consequently, they pay no, or but very slight and useless, attention to any duties as a board of health. Not one-half of them have ever complied with the law, even so far as to organize and appoint a health officer. What are the powers of a local health officer? None

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at all, except as conferred by the board; he is simply the advising counsel of the board. Yet right here is the point to which I wish to call the especial attention of the medical profession — that is, that the law gives them an opportunity to demonstrate to the people whether the medical profession has the knowledge and skill to successfully combat the dissemination of contagious disease, or whether their claims are ill-founded and mere boasting pretense of power they do not possess. That there is such knowledge and skill is unquestionable. How are we to manifest it, and thereby promote our usefulness and honor? We claim to be the conservators of the public health. If so, we must be the educators, the teachers of the public. The law has furnished us small classes of primary pupils — namely, every township board of trustees and every town council — some three thousand such classes in Iowa; and the law says each one *shall* select an advisory teacher. It is true the law does not provide any munificent pecuniary reward for such teachers, but I will not discuss that question now; it is usefulness and honor that I am now speaking in reference to, and our boasted ability to do certain things, provided we are given the legal power to act. It was chiefly through our influence and our persuasion that the State Legislature enacted the law. The opportunity asked for having been granted, what should we do? It is not for us to stand carelessly or indolently, waiting for boards of trustees to inform themselves of the provisions of a law concerning things that they are ignorant of, and in which they take no interest, while we were supposed to know what we were asking for, and to be ready to teach the people how and what to do for their own benefit under the law.

Here begins our opportunity. There is probably not a local board of health in the State who have not near them, or accessible to them, one or more practising physicians, to whom they look for aid in time of sickness, and in whom they have confidence. They will hear cheerfully and willingly the explanations and teachings of that physician, and heartily coöperate

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with him in the performance of their duties, under his instruction, whenever the utility thereof is made plain to them. Consequently, I say that if the people of Iowa do not find the protection from contagious diseases that they ought to have, our profession is responsible for that failure. There is, or ought to be, in every county in Iowa, one or more physicians ambitious and anxious to work for the honor and glory of their profession, and in doing so they will ultimately find their personal reward. Let such physicians inform themselves, if necessary, by correspondence with the State Board of Health, at Des Moines, what the law is in reference to local boards. Then let them begin to educate their primary classes — the township trustees, etc.— and in a very short time nearly every board in the State could be organized for effective duty when needed. "In time of peace prepare for war" may by us be translated to read "In time of health prepare for sickness"— that is, do not wait to organize until small-pox or scarlet fever demands immediate attention. Have your sanitary armamentarium ready to meet those diseases on the threshold of your people, and do not wait until death and paralyzed business have aroused a community of people and destroyed their nascent faith in the power of protective medicine. If your local boards are properly organized when there is no urgent need for them, when that need arises suddenly and unexpectedly (and that is the way it always arises) you have a duly authorized health officer to promptly perform his duties under the law, and enforce, by due provision of law, measures for the safety of the public. The duly authorized officer may, and does, perform duties that the family physician is, in many instances, deterred from doing because of the urgent requests of his private patients and friends. I allude to the requisite publicity by causing a flag to be shown and the quarantining of persons and disinfecting of rooms on premises. Very many people strenuously object to having a red or yellow flag, marked scarlet fever or small-pox, exposed on their houses. The duty of the family physician is performed when he notifies the

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health officer of the existence of such cases of disease. The health officer thereby relieves the family physician from any necessity for enforcing upon his unwilling patrons disagreeable measures for the safety of the public. Without such a legally authorized officer, the spread of contagious diseases in any community cannot be controlled; with such an officer prepared to act intelligently under the law, it can most unquestionably be done. Consequently, I claim that it is specially the duty of competent physicians to use their influence to teach the persons constituting their own local boards the importance of, and the benefits that may be derived from, the proper performance of their duties as health boards.

For the purpose of illustrating my views (that if the people of Iowa are not properly protected from the ravages of some contagious diseases, the medical profession of the State is responsible therefor), I shall give a brief history of circumstances relative to those contagious diseases as they have recently occurred under my own observation, in the county wherein I reside (Wapello), and also some remarks upon what I have heard as occurring in other parts of the State. I will first speak of occasions where the law has not been observed, and what were the results of that neglect.

The village of Kirkville is twelve miles north of Ottumwa; estimated population of village and surrounding neighborhood will not exceed fifteen hundred people. In December, 1883, scarlet fever was developed in the village, and continued to prevail for three or four months, or as long as there was any material for the disease to act upon. No sanitary precautions were taken by those who were the legally authorized guardians of the public health. A few individual families endeavored to protect themselves, and in a few cases were successful, by rigidly confining their own children and themselves at home — incurring the ill-will of their neighbors, but, very possibly, thereby saving the lives of their children. Free intercommunication of families, sick and well, was continued; public funerals were held; convalescent children were not kept from

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the public school. After the community had become thoroughly alarmed, the public school was discontinued for a *short time*, but the intercommunication of neighbors was uninterrupted. No disinfecting of persons or houses was attempted. What was the result? I am informed by our county clerk that up to the 1st of May, 1884, there had been recorded in his office thirty deaths in that community as a result of scarlet fever. I am informed by some of the citizens of the village that there were over forty deaths — that all the deaths were not officially reported in this county. How many cases occurred I do not know, but am informed that a large majority of the cases recovered.

Let the above statement of facts stand as an example of what may, and does, occur in a comparatively isolated country community where none of the provisions of the health law are enforced. By conversations with individuals, and by newspaper reports, I am led to believe that in places in this State where scarlet fever has prevailed, it has been the rare exception where the regulations directed by the State Board of Health for the protection of the people have been complied with. Not having positive knowledge of it, I state it as my belief from what I have heard. The same remark will measurably apply, also, to places where small-pox has occurred.

I will now give my experience of the results of the management for the protection of the people in cases of small-pox and scarlet fever where the law has been complied with. In January, 1882, there suddenly appeared in Ottumwa (population, twelve thousand), in four different families, at the same date, five cases of small-pox, the disease imported by an enterprising medical student from the medical college at Keokuk. All the cases were clearly traced to communication with him. During the next two weeks seven other cases were developed, making twelve cases in all — eleven varioloid and one unmodified — in six different families. Our board of health being already organized and ready for duty, no delay was experienced for want of previous organization. The legally authorized health

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officer was ready to act, and the result was that the invasion of small-pox was quarantined and vaccinated out of existence in less than six weeks, and has not made its appearance since. Previous to that time, and prior to the organization of our board of health, small-pox was accustomed to protract its occasional visits to Ottumwa and linger with us four to six months, creating alarm and demoralizing business. The board of health exercised its legal powers so efficiently that its beneficial results were apparent to every citizen. No child was admitted to the public school without evidence of recent vaccination; all manufacturers and business men and firms required all their employes, numbering in the aggregate not less than two thousand, to be vaccinated; provision was made for the gratuitous vaccination of the poor, the city furnishing the virus; a special policeman (who had had small-pox) was detailed for duty under the orders of the health officer; quarantine of individuals and families, and subsequent disinfection of houses, was effected and rigidly enforced — altogether giving the happy result as above stated.

Since the establishment of the board of health, there has each year — 1882, 1883, and 1884 — begun in Ottumwa an epidemic of scarlet fever. I will briefly describe the last, as it might fairly be compared with the one previously spoken of, at Kirkville, only twelve miles distant, and occurring during the same period of time.

During the first week in March, 1884, there occurred simultaneously, in four different families, six cases of scarlet fever. It probably had existed for a week before it was known to the health officer. Three of those cases were fatal. Immediate prophylactic measures, as advised by the State Board of Health, were instituted. There occurred during the month of March twenty-five cases, five of them fatal. After the first of April there was only one new case developed to this date (May 19th, 1884). The cases occurred in eleven different families, and were easily traced to the same original source of infection. The disease was most undoubtedly quarantined and disinfected

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out of existence in six weeks. The same thing occurred in 1882, and also in 1883. The prophylactic sanitary precautions were then equally effective — each year being about a repetition, as to number of cases, of the preceding year. How was it accomplished? All cases to be reported to the health officer is a *sine qua non*, when he immediately relieves the attending physician from any necessity for enforcing upon unwilling patrons measures for the protection of the public, not interfering in any manner with the attending physician in his treatment or management of his cases. Publicity is the first essential, and a red flag, with "scarlet fever" printed on it, is attached to the house. Until our people became accustomed to it, and found it was law that *had to be* complied with, many persons seriously objected, and a few forcibly opposed, by tearing down the obnoxious flag. A few arrests were made, and soon opposition ceased. We no longer have any trouble from that cause, and flags are not removed until permission is given, and no objection is made to their being shown. The children in a family where there is scarlet fever are not permitted to attend the public school. We quarantine the families where there is fever — never yet have closed our schools. All cases, however mild, are quarantined. Some people try to conceal the existence of scarlet fever in their families. When apparently well-authenticated rumors of a case exist, with no physician in attendance, the health officer visits that family, and if scarlet fever is found, however mild, quarantine is enforced — the public is protected. When the proper time arrives, the room or house is disinfected. In brief, the measures as recommended by the State Board of Health (published in Form 17 B) are *enforced*. Some persons have absolutely refused to permit the disinfection of their rooms. In such cases the health officer has filed an information before a justice of the peace, and, proceeding according to law, has taken with him a policeman and two members of the board of health, and thus compelled obedience to the law. With our community all opposition has practically

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ceased, and our citizens cheerfully comply with the regulations. Any one who attempts to conceal the disease, or disregards the regulations, incurs the enmity and receives the anathemas of his neighbors. The people have experienced and realized in too marked a manner the benefits they have received from compliance with, and enforcement of, the regulations, to tolerate, on the part of their neighbors, any marked disregard of those rules.

In the preceding pages I think I have shown what is the duty of the physicians of this State, why it is their duty, and that the proper performance of those duties will save to the State many lives and an incalculable amount of money, thus promoting the usefulness, honor, and interests of the medical profession.

DISCUSSION.

Dr. Chase.— The paper is very interesting, and particularly so to me at this time, as we are now having a scourge of scarlatina in my field of practice. We are glad to be enlightened in the best methods of putting an end to the epidemic. The disease abated once for a time, but has broken out again. I believe with the author, that, instead of closing schools, the proper thing to do is to quarantine the families where the disease exists. Suppose we close the schools, children will contract the disease at skating-rinks, on the streets, and elsewhere, from persons who have been recently afflicted, or are right from houses where the malady exists. Fortunately the disease has not proven very fatal with us, and for this reason it was difficult to arouse the people to a sense of duty in preventing its spread.

Dr. Hazen stated that the study of the science of medicine had much interested him, but that he had given preventive medicine very little time and attention, and he was inclined to think that the great mass of the profession had done about as well in this direction as he had. The profession is not particularly interested in the prevention of disease, for that is con-

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trary to its interests. The State and the people must be educated in laws of preventive medicine, through some other source than practicing physicians. Persons educated in the laws of hygiene, outside the profession, or members of the profession in the employ and pay of the State, could heartily engage in this work; but the practicing physician will scarcely give his enthusiastic aid to that which directly interferes with his business. Herein lies the key to the apathy in the profession in regard to public health.

Dr. Watson took issue with Dr. Hazen on the point that the medical profession does not favor prevention of disease. All high-minded physicians would lend a helping hand or voice in this direction at any and all times. This is the highest duty that the physician owes to the public. It was from the medical profession that all suggestions and improvements in preventive medicine had come, and he, for one, did not accept the statement that medical men refuse their aid in this direction on account of pecuniary interest. The law relating to prevention of contagious diseases, in this State, is defective, but better than no law. Not long since we had two hundred cases of small-pox in Dubuque, originating from one case treated in a saloon and kept from the knowledge of the public. During last year we had scarlatina continuously — four hundred cases within a radius of five miles. These facts at least suggest the necessity of law, if not the efficacy of law as at present existing and administered.

Dr. Simonton inquired if the boards of health in Iowa, as existing and managed, were not rather more ornamental than useful. To what extent have they prevented the spread of contagious diseases? To what extent diminished mortality? While we have our State Board of Health, and local boards in every city, incorporated town, and township, these local boards, from whom the real work must come, if any good is to be derived, are composed, in the main, of men entirely ignorant of the laws of hygiene and preventive medicine. The physician selected as the medical adviser of these august bodies is more

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frequently appointed on the score of political favoritism than on account of his fitness on the score of qualification. As an example of the "wonderful efficiency" of these local boards in stamping out and preventing the spread of contagious and purely preventable diseases, I would call attention to our city of Des Moines. Here diphtheria and scarlatina have prevailed to a fearful extent for more than four years; and, during this period, three or four hundred innocent children have been called to their final rest by these diseases, largely through the inefficiency and inaction of our board of health(?). And I take it ours is a fair sample of boards of health in general — the Ottumwa board excepted. We all know that contagious diseases are preventable. If so, then who is to blame for the slaughter of children, as I mentioned before, which is occurring in many parts of this State at this time? Evidently the whole adult population, but more particularly the boards of health, for it is with them to issue the edict and it becomes law. But boards of health, fearing to offend a few influential or wealthy citizens, or for some other reason, permit children the freedom of the streets as soon as the fever has left them, and by this means scatter the seeds of disease to the four winds. If boards of health can do no better than this in preventing contagious diseases, it is time to disband the ornamental bodies. It has been my observation that boards of health tack upon the side of a house where a contagious disease exists a card stating the disease is within, then they return to their quarters, almost exhausted from their arduous work, fold their arms, and wonder who will draw the next card. This is the sum and substance of their efforts. Surely such inefficiency does not deserve the name of "preventive medicine." I am decidedly in favor of boards of health and the prevention of contagious diseases, but I have no sympathy for ornamental bodies that merely *play* board of health. I agree with the author of the paper, that, in matters of this kind, there should be no half-way measures. The law has too much *may* in it and not enough *shall*. It says the board of

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health *may* adopt such and such measures: it should read, the board of health *shall* do so and so.

DR. JENKINS.—Dr. Hazen does not express the feelings of the medical profession in regard to the prevention of disease. The profession favors preventive medicine. The law is entirely too lax in these matters. There is too much "may" and not enough "shall," as has just been stated. The law must take hold of diphtheria and scarlatina, as well as small-pox, as these are all highly contagious and fatal diseases.

Dr. Hillis opposed putting at the head of the health-boards men not qualified as physicians.

Dr. Von Mansfelde insisted on thorough quarantine of houses where contagious diseases exist. It is the fault of the members of the profession if the health laws are not enforced; they are usually jealous of the physicians of the board. He asked who constitute the boards of health in the cities of Iowa.

DR. PATCHEN.—In answer to Dr. Von Mansfelde's question I reply, the city council, with one physician, whom they appoint, constitute a board of health in a city of Iowa. The board meets twice a year. It placards and sends printed instructions to all houses where contagious diseases exist. The physician of the board rarely hears anything further about the case. It is the fault of the board of health that more stringent measures are not taken to prevent the spread of these diseases. I am of the opinion that the mortality in our city has been somewhat overestimated.

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XLII.

DAVENPORT BOARD OF HEALTH.

By A. W. Cantwell, M. D., *Davenport.*

In response to the request to present on this occasion some of the results of my experience as an official member of the board of health of the city of Davenport, I offer the following condensed statement:

My first connection with such official duties occurred in 1871, when an epidemic form of small-pox called for such an organization. At this time Hon. J. C. Bills was Mayor of Davenport, and appointed a board of health, of which I was a member. Our duty was, or rather seemed to be, only to eradicate contagious diseases — small-pox and cholera being about the only ones the community seemed to fear at that time.

At first the usual precautions were taken for isolating the disease, by sending all who could be induced to go, to an improvised pest-house located outside of the city in a deserted soldiers'-barrack, formerly used as a hospital in Camp McClellan. The building was used for that purpose for three years, when it was torn down. The actual number of cases at that time was not recorded. Small-pox disappearing, the board of health was suspended until 1873, when it was again revived, requiring our most strenuous efforts, for during the latter part of August cholera made its appearance. The first case occurred on the 14th of that month, no others appearing until the 28th, when two cases were reported at the Burtis House. Upon examination it was found that the excreta were thrown into water-closets, which were connected with the sewer. Unfortunately this sewer did not extend to low water-mark, the outlet being from ten to twenty feet from the water. This left the sewer to discharge its putrid contents into open space with telling effect, for, within forty-eight hours after these cases, cholera was declared epidemic. The most of the cases occurred within a block of the outlet of the sewer.

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The city now felt the need of a thoroughly organized board of health. Hon. J. H. Murphy was then Mayor, and he immediately appointed a board, of which I was the physician. We held daily sessions for the purpose of ascertaining the exact situation, when we would decide all questions with promptness, and every member would consider himself a health officer. All worked with a will. The board instructed me to procure whatever assistance was needed. By being thoroughly organized, and every man doing his duty, we soon rid our city of the dread disease. The details of our work, at the time, you do not want: whoever has once passed through the ordeal will never forget such scenes and trials.

From this time our city always had a board of health, and nothing of interest occurred until during the winter of 1875, when the chief of police and the overseer of the poor brought to my office a woman who said that she was sick and a stranger, without money. I informed the gentlemen that she had the small-pox, and you can imagine their surprise. They attempted to beat a hasty retreat; but, as they had brought her to my office, I wished them to take her with them. "Where shall we take her?" they asked; "we have no pest-house." The board of health was called together, and a room for that night found in an unoccupied building in the center of the business part of the city. The next day being Sunday, they had time to look for a building suitable for a pest-house; and oh, what a hunt! A more thoroughly disgusted set of men never met together. They could find no place — money was no object — and, after much persuasion, the woman was admitted to Mercy Hospital, and a room in the fourth story assigned to her. The board of health laid their grievances before a meeting of the city council, and that body appointed a committee to confer with the board of supervisors, who entered into the spirit of having a hospital erected for such patients. But where to build was another question, as the pest-house had either been burned or torn down by unknown parties. Finally it was arranged to put the house on the

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grounds near, and belonging to, Mercy Hospital, where it was erected under the supervision of Dr. R. J. Farquharson, who was then President of the Medical Board. This building has proven a success, for it was three years after its erection before we had a patient in it. In 1879 the board of health reorganized and held regular meetings, realizing the necessity of caring for the sanitary interests in a more extended manner. We made many advances that year. A night scavenger was appointed, and wagons employed to gather up the garbage or refuse from kitchens, and empty it into the river. In low water, however, some of the refuse was left by the falling river, and soon became quite a nuisance. Our next step was to build a mud-scow for the purpose of carrying away all night-soil and garbage, and we had one built that would hold about thirty yards, which, when full, we had towed below the city and dumped in the middle of the river. This mud-scow is still in use.

At our annual meeting in 1880, a committee, consisting of the city attorney and myself, was instructed to frame rules and regulations for the board. This we did, they were adopted, and I here present a few of them. This was the first year that physicians were called upon to report scarlet fever and diphtheria, which I think require sanitary regulations fully as strict as either small-pox or cholera. The physicians of the city were furnished with postal-cards upon which to make their reports, and it required quite an effort to get some of them to do so.

During this year we also persuaded the city council to pass an ordinance requiring, in case of death, that a burial permit should be granted by the clerk of the board before burial, stating cause of death, time and place, with age and name, sex and color, and what cemetery interred in. To have these rules and regulations carried out, required constant effort and much hard work; and, to let the people see that we meant to have them enforced, we were compelled to arrest and fine two undertakers. A few physicians were also arrested and fined

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five dollars and costs. Since then we have had no trouble—but it is a glorious place to make friends (?).

During the year 1882 we made a few changes in our rules, one being to placard houses for contagious diseases. Many people objected, and the cards were torn down. Where this was repeatedly done, a policeman was stationed in front of the house, at the expense of the inmates, and this soon ended the trouble. We had a few cases of small-pox, not causing any great alarm, as thorough vaccination was requested, to which most of the people complied. Those not able to pay were vaccinated by the board, assisted by three other physicians. The various schools were visited and some five hundred children vaccinated. There were in attendance at our public schools nearly five thousand children, all of whom had been vaccinated within three years, except about fifty, whose parents objected.

The board of health seemed to be doing good work, when, in the midst of our glory, we ordered a lumber company to cease blockading one of the sloughs of the Mississippi, thereby causing a nuisance. They were ordered arrested, and after a lengthy trial before a police magistrate, he declared our board an illegal body. This being near the close of the warm season, and there being such a difference of opinion, we concluded to rest for a short time.

At the fall election, one of our members, Hon. William O. Schmidt, was elected a member of the Legislature. Not wishing to lose what we had done, and as our city was under a special charter, we determined to try again, and we appealed to the Legislature to pass an act empowering cities under special charters to establish boards of health; which was done by the Nineteenth General Assembly, and not too soon. Under this act of the Legislature, we could make our own rules and regulations.

Three weeks before this act could become a law, small-pox appeared in our city, among two German emigrant families, one of the party being sick when they arrived here. When the cases were reported, we tried to induce them to go to the hospital;

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but as they had money, and could care for themselves, they were quarantined and a guard stationed at the house. Some of the neighbors, being curious, took advantage to talk to these people, saying it was all humbug to shut them up, with the result that, in twenty-six days from the time we were notified, two cases were reported in the next house. This family had been the loudest in their denunciation of our action, and also would not allow their children to be vaccinated. By this time, our city council passed a health ordinance, in accordance with the new law, and appointed a board of health. Hon. J. C. Bills, who was a member of the State Senate, was also Mayor, and *ex officio* president of the board. The board was constituted of two aldermen and two citizens outside of the council. I was one of the latter, and was also elected board physician. The next morning after our organization, it was ordered that the city marshal, acting under my instructions, should remove all sick and infected persons to the small-pox hospital, if able to be so moved. Yet, with all our efforts, small-pox became epidemic, for in the west half of the block where it originated there were eighteen cases. We kept taking them to the pest-house until it was filled. Houses were placarded and fenced in, and guards stationed, and by this means we managed to keep it confined, to a great extent, to what we called the infected district, which comprised eleven blocks, with a population of 2,134. In this district there were fifty-five cases, and outside there were twenty cases, the origin of which could be traced to the infected portion of the city. There were five of these cases in one house, four in another, and three in a third; so you can see that where a board of health is properly organized, they can control, to a great extent, the spread of any epidemic.

I have not attempted to give you the details of our actions, for that would be too lengthy. One word further in reference to the small-pox: All houses where it existed were thoroughly fumigated with sulphur, a number of times, by our then efficient city marshal, who attended to this himself, and no cases occurred in these houses afterward.

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Our small-pox hospital is on the same plan as the one advised by the State Board; and it fulfilled the plans, as far as ventilation was concerned, grandly, for during the two months we had as many as twenty cases at one time, in all stages of the disease. The strongest illustration that can be given is, that of the number of infected persons taken there not sick during this siege, there were forty-three who had been exposed before coming, and sometimes there would be ten of them sleeping or caring for their friends, not one of whom took the disease; but, as a matter of course, they were all vaccinated.

During the year 1883, we had our scavenger ordinance changed so that the offal could be removed in the day-time, by what is called an odorless apparatus, which is very simple in its construction. In cleaning a privy, disinfectants are first used, by placing a canvas in front of the privy, with a pot of tar burning. Then the contents of the vault are either pumped out by a force-pump, or dipped out with buckets prepared for the purpose, into strong oak barrels, on which, when filled, the lids (their edges being covered with rubber) are shut down and fastened, and the barrels, which can be rolled or carried, are taken to the wagon and conveyed out of the city, where our suburban gardeners gladly receive the contents. The scavenger, Mr. George Siler, had three or four wagons engaged during the hot months, passing through the various streets, without a single complaint — the most of the people supposing that the wagons were loaded with kerosene barrels.

In conclusion, I would say, gentlemen, that from a crude state in 1871 we have made a gradual advancement, for it takes a great deal of time and perseverance to educate the people. I might say that there is virtue in sanitary science, when I look back over the thirteen years that I was connected with our local board of health, and see the difference, not only in our own board, but over the entire country. We may well wonder how we existed under such a state of affairs. Now we are a power — first local, next State, then the Ameri-

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can Public Health Association. Thus we see the effects of great minds grappling with this important subject, and standing shoulder to shoulder, men of all classes — statesmen, ministers, legislators, merchants, and last, but not least, by any means, physicians, of all schools — working in harmony. What a grand sight, and what a noble work for humanity's sake! Some of you may say, "Where is our National Board of Health, the grandest of organizations?" Commencing in 1879, it laid a good foundation, and its power shone forth in the yellow fever epidemic; but in the summer following, when the country began to recover from the scourge, Congress withdrew its support, to a certain extent. From this fact, we realize that boards of health are expected to accomplish wonders while an epidemic exists, but are the veriest nuisances when the people are apparently well. Hence, our only salvation lies in being thoroughly organized in every branch, from local to national. Then we can truly say that "United, we stand; divided, we fall."

XLIII.

OVERPRESSURE IN SCHOOL.

By W. S. Robertson, M. D., *Muscatine.*

The individual who presumes to say a word in criticism of our system of common schools, incurs the liability of being considered an enemy of one of our proudest institutions. While, in common with all Iowans, I look upon our system of education as one of the greatest blessings of our free and enlightened commonwealth, and while I yield to no one in my admiration of the achievements and capabilities of that system, or in my estimation of the benefits which may yet flow from that beneficent law, wisely guarded and properly administered, which now brings education to the hearth-stone of every citi-

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zen, be he rich or poor — it is because I so highly prize the services which it is in the power of education to render, not only to State and national prosperity and order, but to general health, that I desire to see that system, in many points so perfect and efficient, pruned from some faults and evil tendencies which, unchecked, must materially impair its usefulness, and "leave disaster in its train." While it is desirable that every man, woman, and child in the land should enjoy the greatest possible educational advantages under the law, I may be pardoned if I cause to pass in review some of the shortcomings of our educational system, and expose some of its indiscretions; and, in so doing, I believe I shall meet the approval and reflect the true sentiment of my profession.

It has elsewhere been claimed that "medical men are biased against education, and are therefore prone to exaggerate any little mischief it may do in solitary instances, and to attribute to it evils for which it is in no degree responsible;" in other words, that our profession "would sacrifice mental development to mere bodily vigor." Nothing could be wider of the truth: there can be "no antagonism between mental and bodily growth; he who truly promotes the one at the same time gives a helping hand to the other." Time out of mind have medical men been the most earnest advocates of every influence which tended toward the education of the people. Indeed, our profession is engaged in a life-long struggle with ignorance and superstition, which it is the mission of education to correct. Nor do any better appreciate than they, the advantages which it carries into the communities of neglected children, who are gathered in from the by-ways and hedges, from the homes of squalor and vice, and placed in well warmed and ventilated rooms, where they are trained to those habits of cleanliness, neatness, and order, which underlie the principles of true manliness and self-control, while, at the same time, they are afforded "glimpses of a higher life than that in which they have been born, and the keys are handed to them of unfailing sources of happiness and refinement in their after years."

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As physicians we desire a system of education based upon those broad principles which combine to strengthen the development of the child from birth to adolescence — a development both mental and physical; an education suited to the age, the capabilities, and the social surroundings, as well as to the prospect of after years. In the absence of such a system of education, it may not be wondered at that the medical profession so greatly deprecates the system of overpressure so common in our schools. I venture the assertion that there is not in this audience a medical man, who is in the active practice of his profession (particularly in the larger towns of Iowa), who does not almost daily find painful evidences of school pressure among the children of his clients; and more especially is this true among children of American parentage. I believe there is a wide-spread feeling that our educational work is badly adjusted, and that, in many instances, it is inflicting physical injury, and lowering more or less permanently the vigor of many individuals. During the last two years, both in this country and in Europe, members of the medical profession have expressed their opinions — either in public addresses to their brethren, or to more general audiences — upon the relation of modern education to health, and have pointed out the dangers that are incurred from the want of a proper adjustment of the two. In the lower grades of our schools "the long hours of confinement in what is often a vitiated atmosphere, coupled with the other ordinary conditions of school work and discipline, exert a hurtful influence upon the physical development of the frame — especially is this true upon the heart and lungs and upon the organs of vision." Paley said that "education comprises every preparation that is made in our youth for the sequel of our lives."

Evidently the first objects of schooling are to train and improve the faculties of observation, memory, and reflection; next, to do all this by imparting knowledge which is calculated to be of practical use to the scholar. The old idea of educational training seems to be largely abandoned, while

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to-day all school work converges to examination week as to a focus, and all the classes are put upon the rack to pass this ordeal. It is said to be a powerful lever to get work, of some sort, out of those whose inclination is to shrink mental effort. There is no doubt that the *intention* is good: it is meant to stimulate the idle and the dull children to greater mental exertion, by appealing to their personal pride, or some other motive, and thus inducing them to work for promotion in their classes. Soon we see the duller class of pupils falling behind: then it begins to apply to the industrious and those of average intelligence, and, like a rubber band, it draws tighter and closer, till the long hours of school work are insufficient for the preparation of the lessons assigned, and then begins the second evil — *home studying*. The child goes home after five or six hours confinement in the school-room — often having very inadequate provision for the renewal of the contaminated air, often with no regard to the quantity or incidence of the light, and, after being cramped in an uncomfortable seat all day — to supplement his day of mental labor and begin it anew under the most unfavorable circumstances. The most severe brain effort that the child performs — that which involves most strain and concentration of attention, that opening up of new ground on which progress must mainly depend — is reserved for the period when brain function is almost at its lowest ebb, and when the vital powers are exhausted by the labors of the day. The most severe and important intellectual labor is undertaken just when it is sure to be most injurious and least remunerative. Evening preparation of lessons, if faithfully performed, must be prejudicial to the fatigued brain, and is not even rendered innocuous by a long interval of recreation between it and school work. I am supported by the opinion of some of our most accomplished and observant teachers that the most arduous mental work of a child should be imposed upon it when the mind and body are in their greatest vigor — during the morning hours. One of these teachers says: "One forenoon is worth any four afternoons:" and she

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invariably arranges her classes with this idea in view, giving the lighter mental work in the afternoon hours.

Detention after school-hours, as a punishment for failure in recitations, is one of the most infamous practices. The child, already overworked, feeling that he has not been able to fully comprehend his lessons, is full of feverish excitement as the time of recitation approaches: the little he may know, under the circumstances grows cloudy, and his recitation is more or less a failure; his heart sinks within him as he sees his companions passing out of the room, leaving him a prisoner in disgrace, in the presence of an irate teacher. Such detention is as inhuman as it is unscientific, and is calculated to fill the mind of the pupil with disgust for books, if not for all kinds of mental labor. Were it not better that the teacher should attempt to explain the difficult lesson, and, investing it with some pleasant feature, entice the timid, trembling child by the beauties which lie beyond mere forms and figures? Better to send him away with his school-fellows, into the open air and sunlight, to throw off the solicitude and the fear of punishment with which his mind has been burdened, and on the morrow he will come back to his studies refreshed, invigorated, and inspirited—a new light breaks upon him, and what before was dark and incomprehensible becomes clear and beautiful.

Two classes of children suffer from overpressure: (1) The precocious children—those who learn readily, who are likely to show high averages in their examinations; they are pressed that they may reflect the greatest honor upon teacher and methods. (2) The backward children. This class may be separated into two, possibly three, subdivisions: (*a*) The delicate children, and (*b*) the underfed children; they all attend the same school, are in the same classes, and have the same lessons. There is a considerable number of dull children in every school, this peculiarity ranging from a simple slowness of apprehension to imbecility. The underfed, consequently the weak and ill-nourished, are most often found in

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our larger towns, where large manufactories employ many poor people through the summer months, who are out of work during five or six months of the year from a suspension of business. Many of the children of these working-people are often imperfectly fed and clothed. I do not mean to say that they are actually without food, yet many of them, to all intents and purposes, are partially starved, for the food they get is innutritious in quality and insufficient in quantity. These children are anæmic: they need blood, we offer them a small quantity of brain-polish; they ask for bread, they get a problem; they ask for milk, the tonic do-ra-mi system is presented. Ask their teachers if these pupils require attention to keep them at their school work: the answer is, "Yes, constantly." This lounging and drowsiness is a protective measure taken by the conservative instinct. The impoverished blood has enough to do to keep the vital processes in operation; it has nothing to give to reconstruct tissues, and the less wear and tear we demand of it the better. The *best* thing these children can do is to *sleep* or remain torpid, for in such condition the functional activity is carried on slowly, and with less waste; the very *worst* thing they can do is to *work*. But those children who go breakfastless to school are not all of this class. The child who has worried with an unusually long or hard lesson through the day comes home nervous and exhausted, with face flushed, and an unusually brilliant eye. After a hurried supper he hastens to recommence his lessons, and continues study till a late hour, when, overcome by drowsiness or disheartened, he goes to bed, to moan and toss from side to side. Arising in the morning, with throbbing temples and no desire for food, to begin anew a day of torture like the last, assuredly the child deserves the greatest sympathy; yet how many such cases do we see every school-year! Can education under such pressure be beneficial in bringing out a child's greatest mental and physical development? Should he not be taken from his books till that weary brain can be restored and the mental faculties again assert themselves?

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This class of children suffer much from headache. Headaches differ greatly in character and significance: they may be expressive of fever or of imperfection of vision; they may be of hereditary origin or an individual peculiarity; they may depend on anatomical change or on functional derangement of almost any organ, but the majority of cases are of nervous character and arise from organic change or functional derangement of some part of the nerve-centers. Not infrequently a headache is termed sympathetic, and its cause may be traced to some aberration in the normal functional activity of the stomach or some other internal organ; but, going still further back in our inquiry after the cause, we find its origin still dependent on nervous influences, so that nerve trouble "is at both the beginning and end of the visceral circle." The headaches of childhood seem to be more properly classed among nervous disorders than the headaches of adults — stomach and liver complications being less frequent with the latter, while the child's nervous system is quite susceptible. In school-children the types of headache are anæmic and neurasthenic — that is to say, they are mainly dependent upon impoverishment of the blood and on nervous exhaustion — and, of the two, the latter very greatly predominates. The form of headache complained of by school-children is therefore the kind we would expect overpressure to produce in them. Many of the headaches complained of by children in the more advanced grades of grammar schools, and by the girls of high schools, are neurasthenic, and are found to begin with school work, becoming more troublesome and intense during the term of study, and disappearing during the holidays, only to return with the resumption of school work. Nothing can be more easily explained than the dependence of these headaches on mental strain and anxiety. The headaches increase in frequency as we ascend through the grades of our schools — that is to say, as the brain evolves and the severity of mental strain is augmented. As further proof of this dependence, we find that the headaches are most complained of in the latter part

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of the day, when the brain suffers from exhaustion. and when the pressure falls upon it most severely: they are expressions of fatigue. I have made some inquiry of teachers in our public schools. in regard to this subject, and I find that only three per cent of the children of the lowest grade complain of headache: in the fifth grade, twenty per cent are so affected; in the fourth grade, ten and one-half per cent; in the third grade, six per cent; and in the second grade, four per cent. While these afternoon headaches thus progressively trouble the pupils of the lower grades, these pupils are comparatively free from that form of headache complained of by the more advanced classes. The nerve-centers of the feebler children suffer, and they complain in consequence during school-hours; but the elementary scholar, released from his books, rushes out into the air, and, by the resiliency of his nature, soon transfers the pressure from one group of nerve-centers to another, and dissipates his headache, so that it does not follow him into the evening hours. Not so with the older, more advanced and thoughtful student: looking out into the future toward place and position in society, urged forward by the thought of self-sustentation — that he must soon be his own bread-winner — his anxieties are not so easily laid aside. He reflects that to-morrow shall be as to-day, and his tasks continue to worry him, and keep up the exhaustion these lessons have induced. Thus do the headaches of this class abide with them, and the older they grow the more grievous do the headaches become. Particularly is this true with the girls of our high and our normal schools. It is probably unnecessary to enter upon the discussion of the conditions of the brain and nervous system, upon which these school headaches depend, but this much may be said: That, being fatigue headaches, for the most part, they are attributable to the changes in the ganglion cells of the gray matter of the brain, and to vascular changes dependent thereon. The changes in the ganglion cells are beyond our ken, but the vascular changes which are caused by over-fatigue of the nerve tissue we can

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actually see. By means of the ophthalmoscope we can look into the fundus of the eye, and, in the case of watchmakers, microscopists, and others, who have used that organ excessively, inspect the vessels ramifying on the expansion of nervous tissue there; and, under such circumstances, we can satisfy ourselves that those vessels which in health are ever contracting and expanding in nice adaptation to the demands made on them, have lost their tone and become dilated. Their contractile muscles are fatigued, and will not work, and hyperæmia or congestion results. At a later stage of the process the vessels have become so dilated and enfeebled that they permit the escape of the fluid of the blood, and cause dropsy of the part; and still later, if the pathological process be not arrested, we may have the rupture of a vessel, and the formation of a clot, or hopeless destruction of the nervous textures, which, from having been irritated, have become degenerated and wasted. The blood-vessels in some of its regions, in some of those congeries of centers of which it is now known to be composed, having been kept too long or too constantly on the stretch to supply copious blood-currents to the over-active parts, become fatigued, and first lose tone, and then contractile power. There is dilatation of blood-vessels, with its train of evils in disordered nutrition and function of the part. This probably is the stage of headache when rest soon puts all things right again. But, in some cases, the oft-repeated dilatation and interrupted nutrition ultimately end in permanently impaired nutrition, check the growth, and cause a loss of brain power.

Does some one remark that it is easier to find fault, in general terms, with our school system, than to suggest remedies which shall remove the objections and do no harm elsewhere? We want a more elastic rule governing the standing of scholars, which may allow the bright students to be advanced, to their own advantage and the inspiration of their teachers, while the poor, mentally weak or deformed child shall not be compelled to march shoulder to shoulder with those whom

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"God has made full-limbed and tall." Education should be shorn of its premium on cramming, and examinations should be made more pleasant, healthy, and natural. Let us remember that the world does not exist for the very bright children only, but for the ordinary ones also. The success of our methods should consist in turning out the largest number of happy, healthy, and capable children, and not in creating a few prodigies. I believe it to be true that overpressure in our schools, and its evil effects, are becoming evident in the prevalence of nervousness and nerve troubles among children of an age and of a class which hitherto have not been affected with these ills. There will be worse consequences to deplore in the next generation than in this, if the brains of growing and underfed and worried children are to be forced at the caprice of theoretical teachers, who know little of anything — effective, at least — about the physiology of the organ they are trying to cultivate. "Brain pressure, without brain feeding, is an infatuated policy." The cerebral organism may not in all, but must in many, instances be permanently injured, because exhausted at the precise moment when healthy nutrition — that is, nutrition naturally promoted by and proportioned to healthy exercise — is essential to the integrity of the growing brain. Just as the muscular system of a colt is ruined for life, if its strength be too severely taxed, so the brain of a growing child will be irreparably injured if it be overworked, particularly when it is underfed. We may be much less concerned with the small increase of mortality that has occurred as the result of overpressure, than with the mind-weakening which is becoming evident among children, and the prevalence of "nervous" cases in a class of the population that heretofore has been especially free from this affection.

Permit me to direct your attention to the higher education of our girls of fifteen to twenty years of age. How often are they permitted — nay, *urged* — to enter classes with the boys of their schools, and, "unwisely forgetful of the peculiarities

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of their organizations, study with them continuously, and so induce depression, exhaustion, and irritability, and lay the foundation of many nervous derangements, and not infrequently of fatal diseases. Dr. Edward H. Clark, of Boston, collected a large amount of testimony bearing on the effects on health of the higher education of women in this country. The testimony is in favor of our conclusion, that severe brain work for girls, kept up continuously, is most injurious to health, and that its disastrous consequences are most frequently and ostensibly shown in the nervous system." A prominent teacher in Massachusetts says: "At certain periods, I think that study with girls should wholly cease for some days. I refer to girls from twelve to twenty years of age. Any one who has taught boys and girls (in separate schools, I mean) must have noticed the greater proportionate irregularity of attendance of the latter, and as a parent he would know the reason, and the necessity of cessation from work." Another teacher, also well qualified to judge, says: "Could the custom of keeping girls between the ages of thirteen and nineteen out of school, and at moderate rest, during certain periods, become established among us, a certain number might suffer restraint not absolutely demanded, but the general result would be an incalculable gain to the health, present and prospective, of the inhabitants of the commonwealth." "Common sense and the teachings of physiology," observes Dr. Da Costa, "point in the direction of lessening, as far as practicable, work at a time when the whole system is depressed, and as regards the effort of mental strain. I saw, some years since, a case of violent delirium, lasting several days, produced in an ambitious schoolgirl busily preparing for her examination." The evil effects to be charged to wrong methods of education of women in this country are, according to competent witnesses, numerous and deplorable.

Dr. Fordyce Barker intimates that few women who as girls have been submitted to these methods are able to nurse their children, and are thus deprived of a needed stimulus, and ren-

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dered liable to many disorders which are likely to enfeeble their constitutions. The principal of the New York State Normal School says: "I have been compelled to the conclusion that the sexes cannot be educated on the same system with advantage; that the physical disadvantages under which the female labors render it necessary that a system be devised so elastic, with so much optional work, that the female may rest, at least comparatively, as the occasion requires."

There seems to be a tendency, in certain social circles, to sacrifice firmness of frame and plumpness of form to elegant limpness and æsthetic attenuation, and to protract and augment educational pressure; to forget that there are physical and mental differences in boys and girls — differences radical and all-pervading — which make it wasteful foolishness to attempt to educate both sexes in the same way and for the same ends. How often do we hear of distinguished female graduates being incapacitated for work by reason of brain exhaustion and bodily infirmities — nay, more, we hear of many exceptionally bright and well-educated girls sinking into pulmonary consumption. It may be possible that the intellectual vivacity, which so often accompanies incipient phthisis, has guided to the excessive study; but may it not also be true that the excessive study has induced the phthisis? And few physicians will doubt that if female education is to be carried on, between the ages of fourteen and twenty, without careful adaptation to the requirements of the female organization, we shall have many cases of pulmonary degeneration resulting, directly or indirectly, from it.

There is another malady, of almost equal gravity, in which long hours and imperfect quantity and bad quality of light play an important role. This is myopia, and it is a subject of school hygiene of no insignificant character. Many of the headaches and much of the nervous disturbance complained of by school-children is due to insufficient light, causing an unnatural strain upon the eyes. Chief among the exciting causes of myopia are: close application in early youth, while the tissues

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are lax and infirm; long hours of study without proper periods of rest; poor light, both in quality and quantity; *badly-printed books*, and books in which the *print is too small;* badly-ventilated school and living rooms; and debilitating influences of whatsoever nature. In the public schools of New York, Drs. Loring and Derby found that three and one-half per cent of the youngest children were myopic, while among those of twenty to twenty-one years the percentage reached twenty-six and seventy-eight one-hundredths. Examination made in the New York College, under the direction of Dr. C. R. Agnew, showed that fifty-three per cent of the junior students were myopic. Investigations made in the cities of Brooklyn, Philadelphia, and Cincinnati show similar results. A careful test of the children of the public schools of Muscatine gives the following results: The average for the lowest four grades shows that fifteen per cent are myopic; the next four grades, twenty-nine and one-half per cent; and the high school, thirty per cent. The question is pertinent, How do long hours of study, poor light, bad ventilation, and other influences bring about the elongation of the eye, upon which myopia depends? It is a well-established fact that vigorous use of any part of the human economy causes an increased flow of blood to that part. To this general law the eye forms no exception. During close application to study, the eyes receive a greater supply of blood than when they are at rest. The fluid contents of the eye become slightly increased, the coats of the eye become somewhat congested, and a slight increase in the tension of the eyeball is apt to occur. Now, it is not difficult to see that repeated, though slight, increase of tension may lead to stretching of the coats of the eyeball. Further, the muscles which turn the eyes in various directions, and especially the muscles which converge the visual axes, exert considerable pressure upon the eyeball from without. To this may also be added pressure from contraction of the ciliary muscle in efforts of accommodation. When these muscles contract upon the eyeball, it would be natural to suppose the globe would yield, if

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at all, at the point of least resistance; and this is precisely what does occur — the tunics of the eye do yield at the point of least resistance, and we find in myopic eyes, especially where the myopia is of a high degree, a bulging of the eye backward at its posterior pole. Bodily deformities occur, nine times out of ten, in early life, when the tissues are lax and infirm, and when shape and form yield readily to bad influences. So it is with myopia. It occurs usually when the tissues have not yet hardened sufficiently to resist the evil influences of which I have spoken.

The dullness and simplicity induced by overpressure upon young minds may amount to a pathological condition. Dr. Holland says: "In the course of my practice, I have seen some striking and melancholy instances of the exhaustion of the youthful mind by the overpressure of the faculties. In two of these, unattended with paralytic affection, or other obvious bodily disorder than a certain sluggishness in the natural functions, the torpor of mind approached imbecility. Yet here there had before been acute intellect, with great sensibility; but these qualities, forced by emulation into excess of exercise, without due intervals of respite, and with habitual deficiency of sleep, had wholly disappeared." And besides general enfeeblement of mind, a loss of mental balance is seen as a consequence of injudicious forcing in education. Children previously bright and vigorous pass, from time to time, into what is called a "brown study," or "absence of mind," or become eccentric in manner or conduct — this latter state being most often seen in those who have an inherited tendency to insanity, and in whom it often foreshadows, or leads up to, an outburst of acute mania.

But the evils of overpressure and brain-forcing, as carried on in schools, are not confined to mental failure and disorder, and the frustration of all the hopes with which they were undertaken: they include a whole train of physical diseases, some of which fill with pain and bitterness what should be the bright days of childhood, radiant with joys such as the dim later

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years can never yield, and some of which place life in jeopardy. The study of the fundus of the eye with the ophthalmoscope shows us expanded nerve-tissue in close proximity to the brain, and we learn thereby that the nervous tissue of children is of much redder tint than in adults. But this more vivid redness of the nerve-tissue in youth means greater vascularity and more abundant blood supply. We have already seen that functional activity of nerve-tissue is invariably accompanied by dilatation of vessels and an increased flow of blood to the part; and in the fundus of the eye we see this, as well as on the surface of the exposed brain. But in the fundus of the eye we can see more than this, for there we can watch the effect of overwork of the parts — which we have not as yet been able to do in any exposed brain. "In an affection of the eye involving strain on the organ, the disk becomes red, and even swollen, from over-use of the eye; and this congestion, from overwork of the eye, throws some light upon the state of the brain that may be set up by functional abuse in educational forcing and cramming. Just as overwork of the eye causes congestion and œdema, or dropsy of the disk, so overwork of the brain causes congestion and œdema of the overworked regions or centers of that organ. The overwork must produce arterial fatigue and loss of arterial tone in those vessels that are kept unduly and too long dilated in order to supply the overworked tissues. Overwork at any period of life may induce this series of events, but it is much more likely to do so in the young, in whom the nervous tissues are naturally more vascular, in whom there is greater vascular mobility, and in whom the blood supply is subservient to processes of growth, as well as to ordinary nutrition, repair of parts, and functional activity."

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SECTION ON MICROSCOPY.

XLIV.

REPORT ON MICROSCOPY.

By D. Fairchild, M.D., *Ames.*

In assuming the duties of chairman of the Section of Microscopy, I endeavored to enlist the coöperation of such members of the medical profession as were interested in the use of the microscope as an instrument of research and as an aid in exact diagnosis. I entertained the hope that by means of this coöperation the section might be raised to the dignity which its name suggests. But, unfortunately for the microscope, the members of our profession are too busily engaged with the practical details of medicine and surgery to give attention to microscopical inquiries beyond the briefest examination of urinary deposits, to determine the presence or absence of tube casts.

Physicians are often accused of knowing less about the microscope than any other class of scientific men. If this statement is true, it is contrary to what might reasonably be expected, for to the physician not only does it possess a certain scientific value, but also a greater utilitarian value, for it sustains a close relation to other instruments of diagnosis, as the stethoscope, ophthalmoscope, laryngoscope, etc. We hear very much said about the science of the microscope; to us this is wholly without meaning, for, while the study of the physical principles involved in the construction of lenses and the arrangement of mirrors, and also the fine mechanisms by which the several parts of a microscope are adjusted, is exceedingly important, and should receive commendation and encouragement, to the biologist, and particularly to the physician, the microscope is an instrument by means of which the powers of

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vision are vastly increased. It enables him to see objects which are invisible to the unaided eye, and thereby to extend his inquiries into fields which would be otherwise entirely closed to him. It furthermore makes it possible for the physician to determine with accuracy the nature of deposits and the character of diseased tissue changes which could otherwise only be guessed at. We might, indeed, as well discuss the science of spectacles or the science of the ophthalmoscope or laryngoscope, etc., and yet the practical utility of these several means of improving our natural powers of seeing and of diagnosing disease are unquestioned. The time is not far distant when a practical familiarity with the microscope will be considered as essential to the professional education of the medical practitioner as a familiarity with the stethoscope or the use of reagents and test-tubes are now.

While we feel a certain disappointment in being unable to awaken a greater degree of enthusiasm in the work of our section, we remember that in an organization like this, composed, as it is, of physicians actively engaged in the practice of medicine and surgery, very little time can be found to discuss the more scientific aspects of our profession; that the two or three days devoted to these gatherings, gained at the sacrifice of valuable time, should be given to the consideration of the more vital questions touching the treatment of disease. However, it sometimes becomes a healthful mental exercise to extend our vision beyond the practical details which make up our every-day experience, and review the labors of investigators who are so frequently forgotten in the activities and the more brilliant exploits of the practicing physician and surgeon.

We are often led to feel a certain degree of contempt for the plodding scientist who, with microscope and test-tube, is struggling to work out some problem in biology, forgetting that it is to such men as he that the advancement of our profession, slow and painful as it is, is largely due; that to him whom we reproached as being impracticable may be due the credit of pointing out some fact in the minute structure of our organism,

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or of indicating some pathological change which may revolutionize our views regarding some particular form of disease.

In directing our thoughts into some channel which shall serve to illustrate our subject, we are always drawn to the achievements of the pathological anatomists in elucidating the tissue changes which occur in the kidneys in that affection known as Bright's disease of the kidney. Although Dr. Blackwell had previously observed the connection between albuminuria and dropsy, it was reserved to Dr. Bright to point out the coëxistence between these symptoms and certain pathological conditions existing in the kidneys. The investigations of Dr. Bright, imperfect as they were in themselves, served to stimulate others to make extended inquiries in the same direction; and although for a long time much confusion existed as to what should be included under this term (and even at the present time not a little is yet to be learned concerning this insidious disease), much clearer ideas prevail as to the degenerative changes which mark its progress. What has been accomplished by the aid of the microscope in working out the structural changes occurring in this disease, and the associating them with the clinical history, and what remains to be done in this direction in the future, may be extended into every field of pathological investigation — into diseases affecting the circulatory system, the glandular system, nervous system, etc. Not less important than those pathologico-anatomical investigations are the studies in histology, which have been prosecuted with such remarkable vigor during the past few years that an extensive literature has been developed on this subject, and no medical education is now considered complete that does not include a greater or less amount of instruction in this direction; indeed, it is now conceded that a clear understanding of the physiological processes taking place in the animal body is dependent upon the light shed upon them by the study of the microscopical elements of which the various tissues and organs are made up. And it is likewise true that no real advancement could be made in the direction of pathological investigation

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without a thorough knowledge of the normal structural elements of the body. Dr. Jackson, the celebrated Boston pathologist, however, held microscopical investigations somewhat in contempt; yet it may be assumed that much of the data which he employed with such masterly skill was derived in no small measure from the microscopical observations of other pathologists.

The subject of greatest interest to the general profession is found in the investigations which are being made in comparative pathology, with a view of determining the causes which give rise to contagious, infectious, and septic diseases. The idea that contagious and infectious diseases were due to living organisms is nearly as old as the history of medicine itself, but it was not until the seventeenth century that the doctrine of a contagious animatum took any definite shape. Bianchi, Athanasius, Kirchner, and Paulini held such views, but all objective proof was wanting. It remained in men's minds simply as a theory, and it was not until the following century that the proof was supposed to be furnished by the presence of the ordinary intestinal worms, which were held to be the cause of nearly all the ills that flesh is heir to. John Hunter and Adams believed carcinoma to be caused by an entozoon, and supposed the pain suffered was due to the movements of the animal. The discovery of the yeast cell, and the proof that this was the cause of fermentation, lent a great impetus to the contagious animatum theory, and it has become more and more impressed on the minds of both the profession and the laity. Assuming that the contagia were substances and had the power of increase, the proof that they were living seems, on pure theoretical reasoning, to depend on whether or not they are soluble. A soluble substance, in a purely chemical manner, can produce its like — can increase; but for a granule to multiply, it is necessary that it divide, and this process of division must be accompanied by growth of the divided pieces.

Chaveau was the first to prove that these agents were insoluble. He used for his experiments vaccine lymph. He showed

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that the lymph corpuscles which were suspended in this fluid were not the active agents, for after mixing the lymph with ten times its amount of water, he allowed it to stand until all the corpuscles had settled to the bottom, and then vaccinated with the surface liquid with good results. He next poured some vaccine lymph into a test-tube, taking care not to wet the sides; then on this he poured some distilled water very carefully, so that the two fluids did not mix, but the water lay in a column over the lymph. He then allowed the tube to stand until diffusion had taken place and all soluble substances were equally divided in the two fluids. He vaccinated with fluid from the surface, and the results were negative. He now vaccinated with fluid from the bottom, and good results were obtained. He further experimented with dilutions, and found that up to the fifteenth it acted as ordinary lymph; from this on, his results were irregular, although he made some successful inoculations at the one hundred and fiftieth dilution. If, now, the infectious agent in the lymph had been soluble, it would have diffused, and the liquid at the surface and at the bottom would have been alike infectious.

On theoretical grounds, it seems that we must assume that the contagia are living organisms. In proof of this assumption, Bollinger, in 1855, discovered, in the blood of animals affected with anthrax, certain rod-shaped organisms. Brand showed that they were constant in the blood and in the tissues after death, while the blood of the fœtus contained no such organisms, and that inoculations with this blood were attended with negative results. Tiegel and Klebs filtered the blood through clay cylinders, and found that the filtrate contained no organisms and had no infectious properties. These experiments proved pretty clearly that the organisms in question, if not the cause of the disease, were certainly very closely connected with it. Still there were many difficulties in the way. Among other facts, it was found that the disease did not spread very much by direct contagion, but that certain fields, and even whole districts of country, were infected, and animals grazing

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here always acquired the disease. It was reserved for Koch, at that time a country physician, to clear up many of the difficulties which surrounded the subject. He cultivated the organisms in suitable fluids, and found that, whereas the bacillus itself possessed very slight powers of resistance, at one stage of its development it passed into a condition that made it one of the most resistant of all living organisms. They can be dried and kept for years without losing, in the slightest degree, their virulence. No degree of cold affects them. They will germinate after being kept for a month in absolute alcohol, and they will grow in a four per cent solution of carbolic acid. Strong sulphuric acid or chlorine gas does not destroy them, nor does boiling water; a heat, however, of over 230 degrees Fahrenheit removes from them the power of doing harm. The only known agent which has positive destructive influence upon them is bichloride of mercury. A momentary immersion in a solution of this, of the strength of one part to two thousand of water, destroys them, as does also an hour's exposure to a solution of 1-20,000. By the discovery of the resistance of these spores much was cleared up. Observation has shown that outbreaks of anthrax epidemics were favored by wet seasons. This fact has been explained by some recent investigations of Koch: he found that the bacilli would grow well in the ordinary hay infusion; hence, when the fields are overflowed, a natural hay infusion is made, in which, if any stray bacilli were present, they would grow rapidly, and could be carried by the water into other fields. It was found that when a carcass was buried in shallow earth, spores would form from bacilli in the carcass, and, according to Pasteur, they are brought to the surface by the passage of the earth-worms through the soil.

A school of pathologists exists, of which Weigert is the prominent exponent, which has been inclined to regard micro-organisms not merely as a cause, but the sole cause, of acute suppuration. This view is not in harmony with many clinical facts, nor is it in accord with some recent experimental researches. It has been demonstrated that sub-cutaneous injection of tur-

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pentine oil is followed by the formation of pus, in which no bacteria can be detected; other experiments of a similar character have been made with corresponding results. While we may regard acute suppuration as proof of the introduction of external irritant matter, organized or unorganized, we must, according to Cohnheim, regard suppuration not due to bacteria or other fungi as exceedingly rare.

In that form of septic infection known as pyæmia, facts appear to show conclusively that bacteria must play an essential part in the disease. There is abundant evidence to prove the fact that the metastatic abscesses always contain bacteria. Not only do bacteria exist in the pus and the inflamed tissue constituting the wall of the abscess, but also in an area not already involved in the inflammatory process. The invasion of organisms appear, therefore, to precede the inflammatory reaction; further, according to the same observations, incipient inflammation and suppuration are found around minute emboli, consisting of micrococci, and although thrombosis and embolism occur in various pathological conditions, no suppuration occurs in such fibrinous masses, nor in the adjacent tissue, unless bacteria also be present.

The part taken by bacteria in the production of septicæmia and pyæmia has never been satisfactorily determined. Certain experiments upon animals showed that while the injection of decomposing liquids containing myriads of bacteria was followed by fever and metastatic abscesses — pyæmia — the injection of the same liquids, after filtering through clay, was followed by a more transient fever, but never by metastatic abscesses — septicæmia. Many experiments were made in this direction by various pathologists. In France, rabbits were inoculated with saliva from a child dead of rabies, and an infectious disease induced which terminated fatally in a few hours. Pasteur found in the blood of these animals a bacterium which he regarded as the cause of the disease. This supposed discovery was announced with great confidence to the French Academy.

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but, as it will be remembered, Pasteur very gracefully acknowledged his error, when he discovered that animals inoculated with the saliva from children dead of broncho-pneumonia died in the same manner, and presented the same form of bacteria. From this work, it seems almost established that septicæmia is due to the introduction into the animal either of living bacteria, or of a substance which has acquired noxious properties through previous vital activity of these organisms.

Recent researches into the properties of fibrine ferment, and the productions thereof in the coagulation of the blood, have served to clear up some difficult points in relation to the anatomical and clinical features of septicæmia. It was ascertained that the introduction, or production, of considerable quantities of fibrine ferment in the blood produces effects identical with those of putrid infection. The introduction, then, of certain substances into the circulation — the septic materials of Pauren and Rosenberg, the pepsin of Bergmann, the fibrine ferment of Edelburgh, pepsin and trypsin of Bergmann — which favor the liberation of fibrine ferment, will give rise to what is clinically known as septicæmia. This receives further confirmation from the fact that the blood of septicæmic animals is characterized by the presence of free ferment, which is not found in normal blood. Now, as the production of fibrine ferment is supposed to be due to the destruction of white blood corpuscles, it follows that any influence which increases this destruction of leucocytes may cause septicæmia, either in the presence or absence of Listerian precautions.

Much interest has been excited, during the past year, by the alleged discovery of the so-called bacillus tuberculosis. Although for some years tuberculosis has been generally supposed to be an infectious disease, due to a specific virus, it was not until about a year ago that Koch attempted to show that the disease was produced by a micro-organism which was not only morphologically, but also from its manner of growth, different from all known organisms. He finds, according to his

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experiments, that the organism requires a heat of between 98 and 104 degrees Fahrenheit for its development, and, hence, must be parasitic, not finding in nature conditions favorable for its growth. The germ is taken into the lungs with the inspired air. Here it grows and infects other parts of the lungs, both by extension and by aspiration. Part of the sputa is swallowed, and thus affects the alimentary canal. From the lungs it escapes with the sputa, is expectorated, and the disease passed to others. Koch cultivates the bacillus in sterilized blood serum, and after cultivation of several months, during which time many successive transplantations from one culture tube to another have been made, he finally inoculates animals from the last cultivation — always with success. These results are said to have been confirmed by numerous observers. However, Dr. Schmidt, of New Orleans, an accomplished and conscientious experimental pathologist and microscopist, denies the assumption of Koch, and attempts to show that the alleged bacillus tuberculosis is no bacillus at all; that it is simply a certain form of fat crystal, and that the so-called bacillus, which is only made to appear by a certain method of staining, will disappear — indeed, is dissolved by the addition of ether — which would not happen if it were a true bacterium. The defenders of Koch's theory assume that the effect of the ether is only to dissolve the coloring matter, and that the bacillus can be restained. Schmidt admits the common occurrence of micrococci in the sputa of tuberculous patients, but also states that the same forms may be found in the sputa of non-tuberculous patients, or even in the street-gutter, and therefore assigns no important influence to them. Where the truth really lies can only be determined by future observations. While there are many facts which seem to prove that tuberculosis is an infectious disease, and while we may accept the statements of Chaveau, that the milk of tuberculous cows produces the disease in animals fed on it, we are not all as yet prepared to accept Koch's bacillus theory of consumption.

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Other bacilli have been described — one producing relapsing fever, another giving rise to leprosy, and yet another standing as the cause of diphtheria; indeed, nearly all forms of infectious disease have been assigned to their own peculiar form of micro-organism.

In conclusion, while our knowledge of the exact relation which micro-organisms bear to disease is extremely limited, yet it is in this direction that we must look for light which shall in the future clear up the many apparent mysteries that now surround infectious forms of disease.

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SECTION ON MENTAL AND NERVOUS DISEASES.

XLV.

CARE OF THE INCURABLE INSANE.

By G. H. Hill, M.D., *Independence.*

The tenth census of the United States, taken in 1880, is believed to be the most perfect enumeration of the insane that has ever been secured. It was found that during the decade between 1870 and 1880, while the general population had increased 30 per cent, the number of insane had apparently increased 148 per cent. Not to mention the 77,000 idiots in this country, nor to count an equally large number of half-witted persons, we find there are 92,000 insane; accordingly, on the average, in the United States one person in every 545 is insane: in Iowa, one person in every 639; in Illinois, one person in every 600; in New York, one person in every 360; in Massachusetts, one person in every 348. There were in this State, three years ago, 2,544 insane persons, of whom 913 were in the two hospitals, 69 in other institutions, 323 in county almshouses, 7 in jails, and 1,232 at home. Thus it appears that only 36 per cent of our insane are provided for in the two hospitals, while in Illinois 43 per cent are provided for in such institutions, in New York 57, in Massachusetts 60, and on the average, in the whole United States, 44½ per cent. The primary object of both hospitals in this State is to cure the insane. While the two buildings can accommodate many patients not susceptible of cure, yet they should not be crowded with this class to such an extent as to interfere with the recovery of those who are promising, and for whom it is policy to preserve the most favorable surroundings.

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From the fact that the insane do not recover or die as rapidly as new cases develop, their number is steadily increasing. Since our commonwealth has provided room for only two-fifths of her insane, the superintendents have to turn a deaf ear to numerous applications for admission to the hospitals; and our trustees, from time to time, discharge such incurable patients as can most easily be provided for by the county authorities, in order to keep room for recent and for dangerous cases. We have in Iowa to-day 1,500 insane persons remaining with their relatives, in county poor-houses, in county jails, or otherwise provided for by county authority. Hence, the following questions force themselves upon us for consideration: Ought the State to make provision for more than two-fifths of her insane? If so, in what way can it best be done? Are counties having insane persons on their poor-farms doing well enough by them? Shall we, as medical men and philanthropists, recommend counties that have not yet made any provision for insane persons at home to erect permanent buildings for this purpose?

From the census taken three years ago, we know approximately how many insane are distributed among the counties in Iowa, but we have no means of learning what condition this unfortunate class is in. The State exercises no supervision whatever over this large dependent class. Our code prescribes no systematic or skillful watchfulness by county officers over the chronic insane. Many of the members of this Society know how these unfortunate neighbors and friends are kept in their own counties; but they are not held personally responsible for their proper care, and have not power to provide ways and means for their comfort.

I do not think any county in Iowa should try to care for its incurable insane unless it has enough cases to require a building erected expressly for insane persons, and containing at least two wards for each sex. The quiet ones should be separated from the noisy, the appreciative from the stupid, the neat from the destructive and filthy, those who exercise a good degree of self-control and enjoy freedom from those who are

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lawless and abuse privileges. Iowa is a large State, and most of its counties sparsely populated. We have no large cities. Many counties insist on all their insane being received and kept at the State hospitals because they have neither jail nor poor-house. Moreover, I am of the opinion that insane persons who are not fit to enjoy all the privileges of the families to which they belong, but who require close watching or restraint of any kind, should not be permitted to remain at home, but be required to go to State institutions prepared for them.

New York has an excellent State Board of Charities. Their opinions are of great value. From one of their late reports I extract a few statements:

"In 1868 this board made a thorough examination of all the county poor-houses in the State. . . . This report detailed fully the wretched condition of the chronic insane then in the poor-houses, and earnestly urged their speedy removal to State custody. . . . The conclusions reached then as to the unfitness of poor-houses for the insane, either acute or chronic, have been fully confirmed by repeated subsequent examinations of these institutions. . . . The testimony as to the neglect of the insane in family custody, and that large numbers of acute cases are thus held, is equally conclusive. . . . By correspondence with leading physicians, it appeared that great neglect existed in the care of such insane — that the acute cases received little or no medical treatment, and that, in numerous instances, gross abuses were known to have occurred. . . . A part of such insane were found to be thus held because of prejudice against, or ignorance of, the true objects and purposes of asylums. . . . Others were said to be retained on account of the inability of their relatives or friends to provide for them in institutions, and who revolted from making them a public charge. . . . There can be no doubt that great and lasting evils exist in the care of the insane in families, which, in the end, add largely to the public burdens."

I am convinced that the chronic insane can be better cared

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for in institutions controlled by the State than in quarters under county management. A complete classification is necessary in order to secure the highest degree of order, comfort, and happiness. This cannot be secured without several wards for each sex. In county houses the insane have not usually the benefit of sufficient medical attendance and the continuous care of experienced persons. They frequently escape from their keepers and disturb the community. In State hospitals economy is practiced by the judicious employment of patients, by the use of machinery, and by securing supplies at wholesale prices.

If we agree that the State should supply institutions for a much larger proportion of the chronic insane, another practical question presents itself: Shall the next institution erected be a hospital or an asylum? The State already has two hospitals, and their character is known to you. An asylum would be for the "chronic pauper insane" exclusively. It would be located on a large farm near the geographical center of the State. Its buildings would be cheaply constructed, and so arranged that they could be indefinitely multiplied, from time to time, as more room was required. Its purpose would be to care for all the insane where the derangement has existed longer than one year, unless relatives were able and willing to give them suitable homes. Economy would be the motto in its management.

The question of expense is an important one, where so many are to be provided for and boarded as long as they live; in fact, it is the chief one in the minds of many tax-payers and legislators. In this connection, allow me to quote the idea of an experienced superintendent: "If you start with a certain principle as a basis of action, that principle will permeate everything connected with the institution you are to establish. . . . The one grand idea in the proposed scheme is cheapness. . . . The gentleman who may be placed at its head will, from the moment of his connection with it, understand that his institution is established for the purpose of saving

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money. . . . He has no medical reputation at stake, as it is conceded that the patients are incurable, and, therefore, no stimulus to effort in the proper line of his profession. . . . His credit can only rise just in the proportion as he can diminish the expenses." Now, any one who will reflect for a moment, must see how such an organization will work the utter destruction of those placed in his charge.

I am not in favor of having an asylum in Iowa. In my opinion, the best results will be secured for recent cases, the most comfort and happiness afforded to incurables, and the greatest amount of satisfaction given to the friends of all, by providing three more hospitals in Iowa. One should be built immediately, in this quarter of the State, that will accommodate five hundred patients; another, equal in size, in a few years, near the center of the State; and the last as soon as practicable, in North-western Iowa. During the next century, as they will be demanded, plain, detached buildings can be placed about these five hospitals, on the farms belonging to them, and be under the same general management.

My reasons for this policy are these: We must maintain public confidence in institutions for the insane. To cure an insane man is the best thing that can be done for him and for the State. The sooner one is committed to hospital treatment after he becomes deranged, the more likely he is to recover. Those living near hospitals visit them. They are likely to accompany relatives who are committed to them for treatment, and they have the most confidence in them. If the expense of conveying patients to the hospital is small, they are more likely to be sent at the beginning of the attack. Therefore, convenience of access is a very important consideration.

Many persons believe that the association with patients in a lunatic asylum will make one who is a little insane more so, and even that those who take care of the insane are somewhat in danger of becoming deranged. Experience teaches that this opinion has no foundation in fact. An impaired mind may not be benefited by contact with the insane, but it is not

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necessarily made worse. In all institutions for the insane, deportment is regarded as the chief basis of classification, rather than curability. Chronic cases are often found in the last wards, because they exercise perfect self-control and are inoffensive in manners; while, on the other hand, recent and promising cases, at the outset, are often the most disorderly and troublesome patients in the hospital. Many of the chronic insane are a decided advantage to a hospital, on account of their contented dispositions, their orderly and industrious habits. Of course incurables, who are likely to interfere with the recovery of new patients, are placed in wards apart from critical cases.

The "cottage system," as described in the newspapers or by certain philanthropists, strikes many as being a more desirable manner of providing for the insane than by having them compactly put in a large building under one roof. They think such an arrangement is more home-like and agreeable. Much time might be spent in stating the pros and cons of the cottage system, but suffice it to say that in our climate, where fuel is a large item of expense, and where, much of the year, it is too cold to pass to and fro out of doors, such quarters for the insane are not practical nor economical.

In conclusion, let me say a word about the cost of the hospitals needed. I am sure half a section of suitable land, necessary buildings, machinery, and furniture, all complete, for a hospital that will accommodate five hundred patients, would cost not more than $500,000, if the institution was favorably located.

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XLVI.

INSANITY IN WOMEN.

By Jennie McCowen, M.D., *Davenport.*

There is evidence of a growing feeling among general practitioners that they have, as a rule, given the subject of insanity less attention, comparatively, than its importance demands. As students, their opportunities for acquiring a knowledge of mental diseases have been extremely limited, the few schools offering lectures on insanity usually summing up the treatment in a single sentence—"*Send the patient to a hospital for the insane.*" As practitioners, there has been a very general disposition to act upon the advice, leaving the whole subject to the hospital physicians. This course seemed the more justifiable because the latter, with every opportunity for studying the disease from both theoretical and practical points of view, and with unrivaled opportunities for putting their theories to the test of actual experience, might reasonably be expected to develop a rational and satisfactory theory of treatment. The seeming increase of insanity, however, together with the alleged decrease in the number of cures, notwithstanding the great improvement in methods of care and treatment, urges itself from time to time upon the attention of the profession. Whatever the facts in the case may be as to these particulars, it is undisputed that the disease has outstripped all our endeavors to provide for it; and the evils incident thereto are attaining such magnitude as not to be reassuring, if the limits have been reached in our interrogation of nature and science for remedial measures.

While some material differences exist among alienists as to etiology and methods of treatment, all are agreed that insanity is curable in its earlier stages only; and they affirm, as a reason for their lack of results as to treatment, that a large proportion of the cases sent to them are already incurable

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before coming under their care. Some have estimated that *four-fifths* * of those remaining uncured are so by reason of this delay. If this be true — that four-fifths of the chronic insane of the State of Iowa lose their only hope of restoration to mental soundness while under the care, or at least the cognizance, of the general practitioners of the State — is not the subject one which may well receive more attention from us than has hitherto been accorded to it?

The present age is preëminently a practical one. The period of barren disputations over vague and metaphysical questions in psychology is happily in its decadence, the times demanding, instead, the consideration of those problems of practical moment — cure and prevention.

The question of cure hinges upon that of cause, and upon consulting the reports of hospitals for the insane, we find the alleged causes of insanity to be, for the most part, the common diseases and misfortunes of life. "Ill-health" stands first, or among the first, in point of numbers, in every list consulted. The diseases mentioned as causing insanity have been grouped as follows:

Acute diseases and injuries — as, pneumonia, pleurisy, erysipelas, the exanthemata, typhoid and other fevers, rheumatism, ophthalmia, and bodily injury.

Acute diseases and injuries immediately affecting the nervous system — as, sunstroke, cerebro-spinal meningitis, and injuries to the head.

General chronic diseases — as, organic disease of the heart, syphilis, lead poisoning, gastric derangement, hernia, psoas abscess, varicose ulcer, and malaria.

Chronic diseases especially affecting the nervous system — as, organic disease of the brain, apoplexy, and chorea.

Prolonged draft on vitality — as, prolonged over-exertion, over-study, old age, general prostration, prolonged lactation, excessive child-bearing, privation, and want.

* Report State Hospital for Insane at Mt. Pleasant, Iowa, 1878–79, p. 47.

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Prolonged draft on vitality from emotional causes — as, business perplexities, loss of property, domestic troubles, disappointed affections, religious excitement, grief, anxiety, homesickness, seduction, rape, jealousy, ungoverned temper, and apprehension.

Sudden exhaustion of vitality — as from shock.

Exhaustion from vicious habits — as, venereal excesses, onanism, etc.

The puerperal condition, abortion, diseases and disorders of the female sexual system; and last, but by no means least, *heredity.*

From this enumeration of causes, taken from the published reports of asylums for the insane, it would seem that insanity is very commonly consecutive (whether there be causal relations or not) to disorders of the general system.

That the mind is influenced by physical states is a matter of every-day clinical experience: as witness the delirium of fevers, the delirium and coma of teething and intestinal irritation in children, the perverted feelings and loss of intellectual power in indigestion and biliousness, the coma of suppression of urine, the exaltation of pulmonary disease, the apprehension of heart disease, the depression and mental gloom of sexual disorders, the mental states of pregnancy; the mental prostration, visual hallucinations, delirium, and coma of inanition; the melancholy and mental perturbation of gout, etc. It is also a matter of common experience that, in certain of these cases, the mental symptoms increase in intensity until the physical condition is overshadowed by the mental, and pronounced insanity is established. There are differences of opinion, however, as to whether the insanity is caused by, or only coincident with, the physical condition, the definite relations of morbid states of the body to disordered mental function being, as yet, largely conjectural.

The relations existing between the brain and nervous system and the reproductive system is an important division of the general subject. That there is an intimate and essential sym-

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pathy, has attracted the attention of both ancient and modern writers, but the nature of the influence and the manner in which it is exerted has not been investigated with any very definite results.

Dr. Skene * has called attention to the desirability of studying more thoroughly the interdependence and corelation of the several systems of the human body — a study which, he justly remarks, differs very decidedly from a knowledge of special parts. For convenience of study, he groups the entire organism under three heads, viz.: (1) the general, (2) the nervous, and (3) the sexual systems. He observes that the general, or nutritive, system, including all that is requisite for the maintenance of the individual, is self-sustaining, and capable of an independent existence. The reproductive system, on the other hand, like the nervous system, is dependent upon the nutritive for support, and is incapable of a separate existence. Deriving its organic innervation and blood supply from the general system, it is liable to modification by the variations of that system. This connection renders it possible, also, for the reproductive system to react upon the general system for good or evil; and the cerebrum, from a like connection with both, is capable of affecting both and being affected by both. The most striking evidence of such corelation may be observed at the advent of puberty, the mental evolution being no less complete and striking than the physical. The normal functional activity of the sexual system in woman, the periodic activity of the ovaries in menstruation, the natural cessation of that function at the menopause, the puerperal condition, all furnish additional evidence of a constant interchange of nervous influence between these organs and the brain and nervous system. Organic or functional disorder of this system is accompanied by disordered nervous and mental manifestations in so many cases as to suggest a possible causative relation between them.

* Relations Existing between the Organs of Reproduction and the Brain and Nervous System in Women, by A. J. C. Skene, M.D., in Annals Surgical and Anatomical Society, November, 1880.

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The notion that the sex plays an important part in the causation of insanity is by no means a modern one, but, like many other theories in medicine, dates back to the remotest antiquity. Storer* informs us that Areteus, of Cappadocia, held that a frequent cause of mania was to be found in the suppression of the menses or difficulty in their establishment. Soranus enumerates, among other causes, the long-continued use of medicines which excite the generative organs; also, the suppression of their periodic discharge. Before the expedition of the Argonauts, and before Hippocrates, it is said that the daughters of King Prætus were cured of an affection which, perhaps, in these days, we should call hysterical insanity, by means of hellebore, which was then supposed to exercise a peculiar influence upon the uterus. It is interesting to note, also, that, even at this early period, differences of opinion were entertained upon the subject, Cœlius Aurelianus combating the theory and affirming that women were less subject to insanity than men.

During the Middle Ages all trace of the notion of insanity as a disease was lost, and Pinel's great work was not so much striking the chains from the insane (Chiarugi anticipating him in that†) as in boldly proclaiming what was then supposed to be a new doctrine—that insanity was a *disease*, instead of a demoniacal possession. With the revival of this belief, causation began to receive attention, and again the theory began to be entertained that mental disorder in women was often dependent upon functional or organic disturbance of the reproductive system.

At the present time, we find two extremes of opinion promulgated—one class of physicians being sweeping in their conclusions as to the causative influence of pelvic disorders, the other holding such influence as too insignificant to require attention. The one extreme is well represented by Storer,

*Insanity in Women, by H. R. Storer, M.D.

†Italian Medical Journal, January, 1882.

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who insists that the major part of the insanity in women is caused by reflex uterine irritation, and that, in a majority of cases, a condition of the uterus or ovaries will be found requiring special examination, special consideration, and special treatment; the other extreme by a hospital physician, who, with an extended experience in the care of insane women, *had never met a case* of insanity which he regarded as the result of disordered or suppressed menstruation, and says: "Insanity as a reflex expression of uterine disease, not infrequently spoken of, I am not sure I have ever seen." *

The truth probably lies between these two extremes; nor must it be forgotten, in this connection, that insanity is, in the fewest number of instances, the result of any one cause. Much more frequently it is, as is well known, but the culmination of a long line of unfortunate circumstances, operating, it may be, through a series of years. Undoubtedly in mental, as in other diseases, the union of the objective and subjective causes are required to constitute disease, the local injury usually becoming operative only when united with constitutional tendency. Some form of menstrual derangement is so constant an accompaniment of insanity, that it is not surprising that it should come to be regarded as having causal relation to the mental condition. Such desultory study as has been given the subject, however, has, as yet, failed to demonstrate any particular variety of mental derangement as connected with disordered menstruation; and, at the same time, we find normal and regular menstruation existing in connection with every form of insanity from which women suffer. While in recurrent mania exacerbations often occur at menstrual periods, which might seem to indicate a relation to the menstrual function, we cannot overlook the fact that periodicity is more or less the law of all nervous disease; and, furthermore, recurrent mania is not confined to women, but, on the testimony of so eminent an

* Report Hospital for Insane at Mt. Pleasant, Iowa, 1878–79; Medical Superintendent, Mark Ranney, M. D.

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authority as Maudsley, occurs with almost equal frequency in men.*

In the insanity occurring at the advent of puberty, which usually is ascribed to reflex irritation, there are no clinical features, so far as the mental symptoms are concerned, by which it may be distinguished, and in many cases, so far as we have been able to discover, the sexual organs are well developed and performing their functions normally.

Insanity occurring at the menopause is equally without distinctive features, and we can but query how much influence may not be justly ascribed to the deranged condition of the general system, the disordered nutrition and secretion, which is generally present at this time.

Three distinct varieties are enumerated under the head of puerperal insanity:† (1) that which occurs during pregnancy; (2) that which follows parturition, and is probably puerperal; (3) that which is developed months later, it may be, during lactation. But has any expert in mental disease been able to point out the pathognomonic symptoms by which the insanity of lactation may be distinguished from the insanity coincident with bodily debility from any other exhausting drain? And is it not true that the mental condition in either of the three forms is sometimes mania, sometimes melancholia, and sometimes acute dementia, without any symptoms to distinguish them from these same forms of insanity occurring in the non-puerperal state?

I can but think that more conclusive evidence than has yet been adduced is essential to the belief that any woman should, *by reason of her sex*, be unable to bear the ordinary trials of life or the natural physiological functions of her organism.

That diseased conditions of the sexual organs exert a powerful influence over the nervous system, must be conceded, as clinical observation affords ample proof of it, and the general

* Body and Mind, by Henry Maudsley, M. D., p. 79.

† Insanity of Pregnancy, Puerperal Insanity, and Insanity of Lactation, by J. B. Tuke, M. D.

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practitioner constantly sees cases in which, in connection with some utero-ovarian complication, the mental irritability, sleeplessness, perversity, and abnormal conditions of various kinds, progressively develop, until the depression becomes melancholy, the unreasoning outbursts of passion merge into veritable outbreaks of maniacal excitement, the anomalous and distressing symptoms complained of deepen into actual delusions, and the woman becomes insane, and, by popular verdict, from "female disease." But in attempting to account for the insanity, should we not take into consideration the condition of the general system, which, in these cases, is often marked by such grave deviations from the normal standard of health as have in themselves been enumerated among the causes of insanity? On the other hand, it is to be considered how far the bodily condition may not be the result of the mental condition, as we know that the mind does powerfully excite, modify, or suspend organic function, causing changes in nutrition, secretion, and excretion, and thereby affecting the development and maintenance of the body.* Again, might we not pertinently inquire into the possibility of the localized sexual disorder also being the result of the mental condition, rather than its cause? It is well known that in health sexual excitation may proceed from the mind, and cases are not unknown to the physician in which premature and imperfect functional activity is induced by over-attention to this region, and other cases in which the badly organized brain, by stimulating and perverting the normal emotions, has engendered debility and disease.

Again, the significant fact forces itself upon our attention, that there is no constant form of mental aberration accompanying uterine disorder, and that, whatever form the mental alienation may take, there are no pathognomonic features by which it may be distinguished from the mania, melancholia, or dementia which is not accompanied by uterine complications.

* Influence of the Mind upon the Body, by Daniel Hack Tuke, M. D.

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A mass of clinical testimony, however, may be found in the current literature of the day, seeming to sustain, in a striking manner, the theory of a pelvic causation in the insanity of women — as, for example, the case given, by Duncan,* of dysmenorrhœa, accompanied with attacks of suicidal mania, the height of the maniacal excitement bearing a direct ratio to the severity of the dysmenorrhœa, not being manifested on occasions when the dysmenorrhœa was slight, and being greatest when the dysmenorrhœa was severe.

Noegerrath † reports a case of puerperal mania complicated with ovarian cyst. The cyst was removed, and from the time the patient came out from under the chloroform she was entirely rational, and continued so.

Skene ‡ reports four cases of acute mania developed during the course of pelvic peritonitis. In three of these cases, and possibly the fourth, the ovaries were affected. When the local disease subsided, the mania disappeared, and has not returned in any of the cases.

Schrœder van der Kolk mentions the case of a woman profoundly melancholic, who suffered from prolapsus uteri, and in whom the melancholia disappeared when the uterus was restored to its proper place.

Flemming relates two similar cases, in which the mental malady was cured by the use of a pessary, the depression returning in one of them whenever the pessary was removed.

Maudsley met a case of *two years* standing, in which the mental symptoms disappeared upon the replacing of a prolapsed uterus.

Dr. T. B. Wilkerson § reports a case of removal of the ovaries for insanity with marked erotic tendencies of two years duration. The patient recovered from the operation in three weeks, and in three months sanity was perfectly restored.

* Clinical Lectures on Diseases of Women.

† Journal of Obstetrics, October, 1880.

‡ Journal of Obstetrics, January, 1881.

§ American Journal of Insanity, April, 1882.

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On the other hand, there is no lack of cases in which treatment addressed to the local complications has been practically *nil* in its effect upon the mind — though such cases are not apt to be so promptly and prominently reported to the medical press. In my own practice occurred a case in which mental aberration supervened *upon the cure of the local disorder.*

The results attained in hospitals for the insane, where the difficulties in the way of treatment are reduced to a minimum, are interesting and instructive, if not conclusive.

At the Harrisburg (Pennsylvania) Hospital for the Insane, thirty per cent of the whole number of women were thought to have uterine complications, and twenty-three per cent were under treatment. The results, however, have been largely negative. While menstruation was, in many cases, irregular, it was not found to be so in the majority of cases. Perineal ruptures and cervical lacerations, with all their train of attendant evils — displacements, chiefly — retroversion, prolapsus, procidentia, hyperplasia, metritis, endo-metritis, vaginitis, and ovaritis were found in varying numbers. Three well-developed cases of uterine fibroids were under care. The existence of particular delusions, illusions, or hallucinations was not demonstrated as characteristic of either disease in general, of these organs, or of any special form. The same train of mental symptoms were present in these cases as in hosts of other insane people, both men and women. The treatment resulted in notable improvement of the general health, and produced a more steady and equable nervous state, without the same fluctuations of excitement and depression as formerly; but the conclusions reached were adverse to the hope that the percentage of recoveries would be increased by the uterine treatment.*

In the Kings County Asylum, at Flatbush, Long Island, fourteen per cent only of the female patients menstruated regularly and normally. During six months under observation, 30 of the remaining 165, or over fifteen per cent, did not menstruate at all,

* Reports Lunatic Hospital at Harrisburg, Pennsylvania, 1882–83.

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4 menstruated once, 8 twice, 10 three times, 18 four times, 34 five times, 24 six times at irregular intervals, 31 seven times, and 6 eight times, within the six months. This record certainly indicates a very marked disturbance in the menstrual function. Fifty per cent of the whole number of women inmates were under treatment. The same organic affections of the uterus and ovaries were found as are met with among rational beings. Malignant disease of the uterus and the products of former diseases, such as pelvic peritonitis, cellulitis, and puerperal metritis, were thought to occur more frequently among this class of patients than among sane women. The physical signs did not differ, except that there was a marked absence of tenderness and pain. Treatment was based upon the same general principles which guide in ordinary practice, details being modified to suit the exigencies of each case.

The conclusions reached by Dr. Skene, the gynecologist connected with the hospital, were that acute affections of the brain and nervous system, due originally to disease of the sexual organs, will be relieved, in a large majority of cases, by curing the primary affection. In sub-acute mania caused by, or aggravated by, disease of the sexual organs, marked benefit or prompt recovery may be expected to follow the cure of the pelvic disease. On the other hand, chronic mania, associated with disease of the sexual organs, will often remain unchanged after the local disease has been relieved.*

I have asked your attention to this subject, not with the purpose of advocating either side of this disputed question — it is not to be settled by mere assertions of opinions, however emphatic or from whatever source — but to ask your attention, as a body of general practitioners, under whose care the disease comes in its incipient stages, to the desirability of giving this branch of nervous disease more attention than it has hitherto received. However we may differ as to the nature of mind, we must all agree that its manifestations take place through the

* Gynecology as Related to Insanity in Women, by A. J. C. Skene, M. D., in Archives of Medicine, February, 1880.

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nerves, and that mental derangements are the result of nervous disease, to be studied by the same methods of investigation as other nervous disease. Insanity is a disease manifesting itself by physical, as well as mental, symptoms; and I can but think that the future of psychology is to come through a more careful study of the relations subsisting between physical conditions and mental states — not the abstract acceptance of the theory merely (which is not a new one to the profession), but the practical and painstaking application of it to individual cases. And as the hospital physician rarely sees the disease in its earlier stages, the experience and observation and study of the general practitioner as well is necessary in order to arrive at the whole truth.

The general practitioner, as compared with the hospital physician, labors under the disadvantage of seeing but a limited number of cases; and while few, perhaps, may be justified in drawing conclusions from the occasional cases occurring in their own practice, they may, and of duty ought to, increase the general fund of information by giving to each case keen and critical study by the same exact methods of investigation which have achieved so much in other directions. I am persuaded that if for a series of years, in addition to an accurate description of the mental manifestations, an exact record should be kept of all the physical symptoms (as has been done in typhoid fever, pneumonia, etc.), the collection of such records and their comparison might reveal facts which would justify a decided opinion where we now have mere conjecture, and might, let us hope, throw some light upon the unillumined field of prevention.

A disease which deprives a man of all his rights and privileges as a member of the community in which he lives, of his right to liberty and the pursuit of happiness according to his own methods, of his right to the enjoyment of home, to the society and care of his family, to himself; a disease which tends neither to recovery nor death, but to chronicity, during which its subjects cease to be producers and become consumers

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through long periods of years; a disease which year by year seems to increase in frequency, and at the same time to yield less readily to treatment, and which, during its incipient and curable stages, is most often under our care, may surely claim from us the most careful study by the most approved methods known to the profession.

DISCUSSION.

Dr. Dean considered the paper excellent, and exhaustive on the subject, and reported several cases as confirmatory of the doctrines set forth by the author.

Dr. Hill.—An excellent paper, fair in its statements. The percentage of insane women in this State is the same as that of men. The causes in women, as stated by the paper, are frequently different from the causes in men. In the latter, a common cause is injury about the head by blows and exposure to the sun. The number of insane persons is on the increase everywhere — on the increase because the insane are better cared for and do not die so early; again, more prevalent on account of the changed occupations of the people from manual to mental labor. But aside from a direct change just stated, on the farm, even, more brain-work is expended than formerly. Telegraphs, telephones, railroads, are remote causes of insanity, from the great mental tension and friction which they bring about in our modern civilization. The causes are frequently complicated: there may be a predisposing element transmitted from parent to child, then may follow untoward circumstances in business, grief from death of friends, etc. Physicians, in certifying to causes of insanity, often state the symptoms as the cause. Insanity is somewhat changed in that the patients are more debilitated than formerly. Insanity due to disease of the generative organs is not different from other insanity. Treatment should be more physical than moral. Specialists have no peculiar remedies different from those of the general practitioner. In hospitals, we can insist on remedies being taken; not so in private practice.

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Dr. McNutt objected to one sentiment in the paper, and that was that young medical men did not study mental diseases; they are usually well qualified and industrious in this particular. If religion could be a cause of insanity, Alexander Campbell would have died insane. Robert Dale Owen, who had no religion, died of insanity. Religion is a conservator of the forces of the mind. No woman inheriting a tendency to insanity should marry.

Dr. Scofield thought some of the remarks made by Dr. Hill were calculated to mislead: for example, the doctrine that persons actively engaged in business pursuits were more prone to insanity. They are not more inclined to insanity than those of a more illiterate and lower order of society.

Dr. Hill.—People in the lower walks of life become insane in attempting to compete with those of stronger minds above them. We are trying more and more to treat uterine disease in our hospitals. We have women physicians set apart for the purpose.

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ARMY MEDICAL LIBRARY AND MUSEUM.

[Dr. ROBERTSON, in introducing the resolutions found on page 16, made the following remarks.]

MR. PRESIDENT: I beg the indulgence of the chair and of this Society for a few moments, to present for consideration a subject in which every medical man of our nation should feel deep personal interest.

During the last session of Congress (the forty-seventh) a communication was sent by the Surgeon-General of the Army to the Secretary of War, setting forth the very unsafe condition of the building in which are stored the Army Medical Library and Museum — it being liable, at any moment, to destruction from fire — and stating the urgent necessity for the erection of a fire-proof building for the reception and preservation of the property. With the communication were also enclosed estimates and plans for a suitable structure for the purpose. The Secretary of War approved the papers, and sent them to the President of the United States, who immediately transmitted them, with his endorsement, to the Senate and the House of Representatives. Accordingly, a bill was prepared "Authorizing the erection of a fire-proof building in the city of Washington, to contain the records, library, and museum of the Army Medical Department." February 28th, 1883, the bill was read twice in the House of Representatives, committed to the Committee of the Whole House on the State of the Union, and ordered to be printed. Following is the report of the committee:

[COPY OF REPORT NO. 1995. SHELLENBERGER.]

"The Committee on Public Buildings and Grounds, to whom was referred a message from the President of the United States, transmitting a communication from the Secretary of

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War, recommending an appropriation for the purchase of a site and the erection of a fire-proof building thereon in the city of Washington, to contain the records, library, and museum of the Surgeon-General's office, having had the same under consideration, respectfully report:

"That the necessity for a suitable fire-proof building, to contain and preserve these important collections, seems clearly demonstrated. The building in which the greater part of these collections is stored is the old theater that was built in about nine months, known as 'Ford's Theater,' on Tenth street. It is at present in a very shaky condition. The back wall is far out of plumb, and probably, if it had not been relieved by iron columns, the whole building would have fallen. The north wall is also in bad condition. The roof is not fire-proof. Buildings in the immediate vicinity are frame — some of them shanties. The danger from fire, therefore, is really very great, and fires have already broken out, not in the building itself, but in its immediate vicinity, and the Government watchman in charge of this building discovered the fires and succeeded in putting them out before they spread. The lower floor is at present occupied by clerks of the record and pension division. It is very dark, necessitating the use of gas-light very freely, and has positively no ventilation. Colonel Jones, Inspector-General of the War Department, was sent by the Secretary of War, several years ago, to examine it, and made a strong report against the building, stating that not more than one-third of the number of clerks employed in it should be allowed to remain. In the judgment of your committee, it is dangerous to the life of any person at all predisposed to lung troubles to be employed in the lower part of the building for seven or eight hours a day. Many of the clerks connected with this division have been temporarily placed outside, in buildings rented for the purpose, on the corner of Tenth and F streets. This work would be consolidated in a new building.

"The collection of records, books, and museum specimens stored in this building, and in imminent danger of destruction, are of great national importance. The medical and surgical records of the late war need only to be mentioned to have their value appreciated. The library is the largest and best medical collection in the world at the present time. It has grown up in the last fifteen years, partly through regular appropriations made by Congress, but very largely through

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voluntary contributions made by physicians all over the country. Every day, books, pamphlets, and papers, contributed by physicians, are received from different parts of the country. The library now contains about seventy thousand volumes. It receives every medical journal and all the medical transactions published in the country. These are properly indexed as they come in, and the index is being published in the catalogue of the library — so that the catalogue shows on any given subject not only the book on that subject, but all the articles upon it that have been published in journals and transactions.

"The museum is by far the best collection of materials relating to military medicine and surgery now in existence. There are over twenty thousand specimens illustrating the various diseases of armies and military surgery. The museum is largely visited, and the collections often examined by medical officers detailed by foreign governments.

"The records show that some forty thousand persons visited the museum during the year 1881. The medical library belongs especially with the medical museum — the same persons who use the one use the other; those who visit the one visit the other, because they mutually illustrate each other. It seems desirable that they should be kept together. The medical library and museum are highly technical and scientific, for the most part visited and used by the same persons, but are not of general public interest. They are, however, invaluable for the purpose of educating a great people like ours in the diseases of armies and in the art of military surgery. Such a store-house of knowledge, open to the medical profession of the country and freely consulted for a score of years before the late war, would have saved to the country thousands of precious lives and limbs, and have alleviated untold suffering.

"The medical profession throughout the country have presented to the committee a large mass of testimony commending the unequaled collections, both of the library and of the museum, and have earnestly requested that suitable provision be at once made for their preservation. It would be utterly impossible to replace them, if lost, and equally impossible for private enterprise or individual effort to collect and preserve medical and surgical treasures of such vital importance to the people of our own and of other lands.

"The building proposed is plain, fire-proof, with a large

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amount of floor-space, and, constructed upon a Government reservation, will cost no more than the same space provided elsewhere in connection with any other building or department. If the plans submitted should be approved, the building will cover an area of about 21,000 square feet, contain about 1,350,000 cubic feet, and at a cost of $200,000, recommended by the bill, or about 15 cents per cubic foot. It is proposed to occupy the whole lower floor of the building, for the present, with the clerical force of the record and pension division, and perhaps two or three rooms above — thus accommodating the whole force, and avoiding the necessity of several rented buildings. When the necessity for such force diminishes, as we hope it will in a few years, then this room could be occupied by the laboratory, necessary scientific work in connection with the museum, and increasing wants of the library and museum generally.

"For these and other reasons the committee recommend the passage of the accompanying bill, providing for a competent commission to select a site near the National Museum, and to provide plans and estimates for a building, to cost, when completed, not exceeding $200,000. Executive document No. 65, Forty-seventh Congress, first session, is herewith submitted as an appendix to this report, and made a part thereof."

[SENATE EX. DOC. NO. 65, FORTY-SEVENTH CONGRESS, FIRST SESSION.]

Message from the President of the United States, transmitting a communication from the Secretary of War, with accompanying papers, recommending an appropriation for the purchase of a site, and the erection of a fire-proof building to contain the records, library, and museum of the Surgeon-General's office.

January 19th, 1882, read and referred to the Committee on Public Buildings and Grounds, and ordered to be printed.

To the Senate and House of Representatives:

I transmit herewith, for the consideration of Congress, a communication from the Secretary of War, with accompanying papers, recommending an appropriation for the purchase of a site and the erection of a fire-proof building to contain the records, library, and museum of the Surgeon-General's office.

CHESTER A. ARTHUR.

Executive Mansion, January 19th, 1882.

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WAR DEPARTMENT,
WASHINGTON, January 6th, 1882.

I have the honor to transmit herewith a communication from the Surgeon-General of the Army, submitting plans and estimate, amounting to $300,000, for the purchase of a site and the erection of a fire-proof building to contain the records, library, and museum of the Surgeon-General's office. In his letter the Surgeon-General sets forth urgent reasons for the erection of this building, in which I concur, and, in accordance with the provisions of Section 3663, Revised Statutes, I beg the same be transmitted to Congress.

I am, sir, very respectfully, your obedient servant,
ROBERT T. LINCOLN,
The President. *Secretary of War.*

It may be interesting to the members of this Society to learn that this "library now contains about fifty-one thousand volumes and fifty-seven thousand pamphlets, relating to medicine and allied topics. The contents of the Army Medical Museum consists of twenty-two thousand specimens, and these are unique in the completeness with which both military surgery and the diseases of armies are illustrated. Their destruction would be an irreparable loss, not only to the United States, but to the world. There are filed in the record and pension division over sixteen thousand bound volumes of hospital records, together with a great quantity of papers embracing the original records of the hospitals of our armies during the civil war. Aside from their historical value, these records are daily searched for evidence needed in the settlement of large numbers of pension and other claims, for the protection of the Government against attempted frauds, as well as for the benefit of honest claimants."

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NECROLOGY.

MARK RANNEY, M. D.

By A. W. McClure, M.D., *Mt. Pleasant.*

Dr. Mark Ranney, late Medical Superintendent of the Iowa Hospital for the Insane, at Mt. Pleasant, and Lecturer on Insanity in the State University, died at the Hospital, February 1st, 1882, of acute pneumonia. He was taken with the disease while going to Iowa City to fill an engagement there, on his way to the Des Moines meeting of our Society, in January, 1882, at which meeting he was to present a report "On the Future Policy of the State towards her Insane." He was born in Westminster, Vermont, July 7th, 1827. After receiving an academic education in his native State, he entered upon the study of medicine with Dr. Campbell, of Westminster. In 1849, after graduating from the Vermont Medical College, he was elected Assistant Physician to the Butler Hospital, at Providence, under the superintendency of the distinguished Dr. Ray. Here he remained until 1854, when he was selected for a more desirable position in the McLean Hospital, near Boston, under Dr. Luther V. Bell. These places he filled so ably and acceptably that he was recommended by both these eminent alienists for Superintendent of our Hospital, made vacant by the resignation of Dr. Patterson. He was elected Superintendent of the Hospital at Mt. Pleasant in 1864, and in that year took charge of the institution, where he remained up to the time of his death, except about two years (1873–1875), during which he was in charge of the hospital at Madison, Wisconsin. In 1871, by invitation, he delivered a course of lectures on insanity before the class at Iowa City, and filled that position in the University up to the time of his death.

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Thus has ended an unusually active and useful life. His natural endowments of mind and his training under such distinguished specialists preëminently fitted him for the head of such an institution.

Dr. Ranney was an untiring worker, ever painstaking in whatever he did, claiming that whatever was worth doing at all was worth doing well. His life was full of good offices to his fellow-men. Always unsparing of his own time and strength, patient and undaunted under difficulties and perplexities, faithful at all times to the interests committed to his care, perfectly devoted to his chosen work, he fell in the prime of his life, like the full-grown oak smitten by the untimely blast.

GEORGE W. STEWART, M. D.

By R. S. Brice, M. D., *Keota.*

George Washington Stewart, the subject of this brief sketch, was born at Chester, Vermont, May 30th, 1847. At the early age of fourteen years he enlisted as a soldier in defense of his country, and served the government faithfully and acceptably for three years. He received instruction in the study of medicine from Drs. Powers and Dean, of Muscatine; his collegiate education at the Medical College of Ohio and Rush Medical College of Chicago. From the latter place he received his degree of M. D. in February, 1869.

His first field of labor was in Chicago, Illinois. From thence he removed to Muscatine, Iowa; at which place, in 1873, he performed a most remarkable surgical operation (with results replete in every particular), which brought him notably before the profession. The operation consisted in the removal of a portion of the *left lobe of the liver* by *excision.* This procedure was necessitated from traumatism of the right hypochondriac region of the body. This important case, with full detail of the same, was presented by the Iowa State Medical Society, in

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1876, to the American Medical Association, in its contribution to the history of the practice of medicine and surgery during the first century of the republic.

Dr. Stewart was married June 5th, 1873, to Miss Fannie Van Winkle, of Trenton, Illinois. This noted and accomplished lady, with four children, survives his untimely death.

He removed from Muscatine to Burlington in 1876, and became Medical Director of the Centennial Life Insurance Company. He was also an active member in the Des Moines County Medical Society; also of the State Medical Society. A frank, open-hearted, liberal-handed, zealous worker, he endeared himself to his co-laborers in elevating and sustaining the high standard of the medical profession among the circles in which he associated.

In 1878 he removed to Danville, where he resided at the time of his death. During the winter of 1881–82 he contracted a severe cold, from long and continued exposure, which finally terminated in phthisis pulmonalis, from which he died April, 1882.

In the medical record of Dr. Stewart we have portrayed a life earnestly devoted to his profession. As a faithful, zealous worker, there seemed no hardships too great for him to surmount, no privations too great to endure, for the sake of suffering humanity. The excellencies of his Christian character were daily exemplified by him. In his early death another honored member of the profession has fallen at his post of duty, and society has lost a valued friend, and our association a valuable member.

NATHAN H. TULLOSS, M.D.

By E. F. Clapp, M.D., *Iowa City.*

Dr. Nathan H. Tulloss was born March 24th, 1826, at East Fairfield, Ohio, and died in Iowa City, April 11th, 1882. He was married April 1st, 1847, to Miss Amy Williamson, of Fairfield, Ohio. His wife and two sons survive him. He gradu-

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ated in dentistry at Philadelphia, in 1860; came to Iowa City in 1861, and commenced the practice of dentistry; graduated from the Medical Department of the Iowa State University in 1871. He was a member of the State Medical Society for several years. Was public-spirited, active, enterprising, kind-hearted, and is lamented by all.

J. A. WRIGHT, M.D.

By J. Williamson, M. D., *Ottumwa.*

Dr. J. A. Wright was born in Ohio, and died at Danville, December 19th, 1882, aged 38. He was a charter member of the Des Moines County Medical Society. He attended one course of lectures at the College of Physicians and Surgeons, at Keokuk, and graduated from the University of Louisiana, New Orleans, in 1879. He became a member of the Iowa State Medical Society in 1880.

WILLIAM H. SMITH, M.D.

By C. B. Bosbyshell, M. D., *Glenwood.*

William Henry Smith was born in Licking county, Ohio, August 21st, 1844. In 1850 his parents removed to Unionville, Iowa, which was the home of his boyhood and early manhood. In 1864, while at school in his native State, he enlisted in the service of his country and was appointed one of the non-commissioned officers of company K, one hundred and sixty-sixth regiment of Ohio volunteer infantry, in which he served until honorably discharged. After the war he returned to his home in Iowa, and in 1869 commenced the study of medicine in the office of Dr. S. H. Sawyers, of Unionville.

In 1871 he entered the Chicago Medical College, and graduated with honor from that institution in March, 1873. In the latter part of the same year he married Miss E. R. Barnes,

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and opened an office in Centerville, Iowa, where he built up quite a practice and made many friends. In 1876 he removed to Glenwood, the county-seat of Mills county. Here he displayed great energy and ability, and soon had a large and lucrative practice. He made hosts of friends, being very genial and warm-hearted. He became an active member of the Council Bluffs Medical Society, and also a member of the Iowa State Medical Society. He was always interested in anything pertaining to his profession.

He died at Glenwood, of carcinoma, leaving his wife and one son, with a large circle of friends, to mourn his loss.

B. H. REYNOLDS, M.D.

By H. C. Markham, M. D., *Independence.*

An intimacy with Dr. Reynolds, both personal and professional, and of a character and duration exceptionally pleasant to the memory, renders it proper that I should say a few words concerning him and our bereavement in his untimely death.

Nearly twenty years ago, by a mere — but most fortunate — coincidence, Dr. Reynolds and myself located in Iowa as neighboring practitioners. As the scanty population of that period furnished but limited social material, the acquaintance and friendship of the Doctor and his estimable wife was a pleasure at once appropriated, and knew no shadow or change until the curtain of death parted and he passed from our view forever. Our paths led in parallel directions, but in no instance ever crossed each other. Both of us were upon the threshold of active life, and stimulated by mutual hopes and visions of the future. The contagion of his professional enthusiasm and ambition was as salutary as it was irresistible. Nature favored our deceased friend, in a degree seldom equalled with endowments the possession of which constitutes the born physician. Physically a model of active, stalwart manhood, his buoyant spirits and cheering manner constituted an arma-

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mentum before which the gloom of the sick-room was made to retreat. In consultations his scrupulous honor and courtesy rendered it an invariable pleasure to secure his advice and assistance. In no instance did he fail, as a consultant, to leave the patient not only benefited by his advice, but with strengthened confidence in the regular attendance.

The Doctor's social tastes and popularity did not, as often is seen in all professions, hinder him from keeping well abreast of the scientific advance of the day, and although his voice at the meetings of this Society was not so familiar as his presence, it was from no lack of talent or interest, but rather a modest desire to benefit himself by listening to the experience of others.

In his death the light of many homes and hearts is sadly dimmed. That he should be called hence in the very zenith of his usefulness as a Christian physician and citizen is inexplicable except to infinite wisdom. The profound mystery before which, while living, he bowed with reverent awe, he himself has solved. His life-work, the spirit of which graven marble cannot portray, is the true monument to his memory—a memorial that will be kept forever green in the hearts of all who enjoyed its benefits.

ROBERT S. C. GWYNN, M.D.

By G. A. Meredith, M.D., *Ames.*

Robert S. C. Gwynn was born at Sarahsville, Ohio, October 29th, 1848, and died at Madrid, Iowa, July 24th, 1884. He was the oldest of seven children. His parents moved to Missouri when he was eighteen years old, and he remained at home, working on the farm with his father in summer and attending school during winter, qualifying himself for teaching. He taught several terms, and in 1873 commenced the study of medicine in the office of Dr. Barney, of Chillicothe, Missouri. He attended lectures at Louisville, Kentucky, and

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graduated at that school in 1875. The same year he went to Boone, Iowa, and commenced the practice of medicine in partnership with P. S. Moser. After remaining there about six months, he moved to Madrid, where he remained till the time of his death. In 1877 he married Miss Annie R. Hardy, who survives him. One child, a daughter, now about four years old, was the result of this union. The Doctor became a member of the Central District Medical Association soon after its organization, in December, 1875, at Boone, and was elected President in 1880, serving one year. He was also a member of the State Medical Society, joining that body at the meeting at Council Bluffs, in 1883.

Dr. Gwynn was a thorough and conscientious student, and kind in the practice of his profession, ever ready to go at the call of suffering humanity. His very extensive practice soon impaired his own health. He was highly esteemed by the community in which he lived, and at his death the whole community seemed to feel a great personal loss.

CHARLES HAMILTON RAWSON, M.D.

By W. H. Ward, M.D., *Des Moines.*

Dr. Charles Hamilton Rawson was born in Orleans county, Vermont, on July 16th, 1828. At the age of twenty years he began the study of medicine with Dr. A. P. Barber, and graduated at Woodstock, Vermont. Then for two years he practiced medicine in Canada. After that he attended lectures and graduated at the New York College of Physicians and Surgeons, and was placed on duty at Bellevue Hospital, where he remained for about a year and a half.

Upon the breaking out of the California gold fever, in 1849, he applied for and obtained the position of surgeon on the steamer S. S. Lewis, going around the cape to San Juan and running from that port to San Francisco. He was on the steamer until it was wrecked, near Acapulco. He then went

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into the marine hospital at San Francisco as surgeon. At the end of two years he returned to Vermont on a visit, and while there was persuaded to come to Iowa. He reached Des Moines in October, 1856. In 1860 he was appointed surgeon of the fifth Iowa volunteer, and was afterward promoted to the rank of brigade surgeon. In this latter capacity he served until broken health compelled him to resign. In November, 1865, he was united in marriage to Miss Mary E. Blake, daughter of Hon. W. H. Blake, of Swanton, Vermont.

Dr. Rawson was an active and honored member of the Polk County Medical Society for twenty-eight years, adding greatly to the interest of its meetings, as well as to its perpetuity and success, by his interesting professional reports, and by his timely and judicious counsels. He became a member of the State Medical Society in 1868, and ever had a lively interest in its prosperity. He was also for many years a member of the American Medical Association.

For eighteen years a business copartnership existed between Dr. Rawson and the writer hereof, and it can be most truthfully said that in all these years the closest intimacy and most perfect harmony existed. In his professional intercourse with his colleagues he was genial, courteous, and yet dignified. He was a most faithful and attentive physician. No personal want, no weariness of the flesh, nor storm, nor darkness, could cause him to neglect a patient who needed his help. Into the sick-room he carried not pills and powders alone, but sunshine and cheer, as well. In his business relations he was the soul of honor, and by economy and a faithful attention to his business, as well as professional, interests, he acquired not only a handsome and substantial competence for his family, but left, as an additional legacy, *a good name.*

He closed his busy life at his home, in Des Moines, surrounded by loving friends, June 27th, 1884.

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ARCHIBALD S. MAXWELL, M.D.

By A. W. Cantwell, M.D., *Davenport.*

To the President and Members of the Iowa State Medical Society:

Your Committee on Necrology for the Second Congressional District begs leave to submit the following as its report upon the dead since January 1st, 1882. I have had reports from all the counties in the district, and I am happy to say none have died in the district. Two who were former residents of Davenport have died. Dr. R. J. Farquharson died in Des Moines. From there, we suppose, his death will be reported. I will say that none will miss him more than the profession of Davenport, for to "know him was to love him."

Archibald Stephens Maxwell was born in Tuscarawas county, Ohio, June 22d, 1818, and died near Los Angeles, California, March 13th, 1884 — very nearly sixty-six years of age. I can say nothing more fitting as a tribute to his memory than the closing remarks of a Memoriam read at a meeting of the Scott County Medical Society, April 3d, 1884:

"Dr. Maxwell was one of the original members of our society; also a charter member of the Iowa and Illinois District Central Association, and of the medical board of Mercy Hospital; a member of the Iowa State Medical Society, and at one time president of our board of education. Universally respected in life, our associate leaves behind him a worthy record. Naturally, realizing the uncertainty of life in others, he still clung to its many attractions, and sought in other climes to prolong his days of usefulness. In vain the fierce blasts of an Iowa winter are exchanged for the soft zephyrs of the Pacific coast. The relentless hand of the great destroyer visits alike the frozen regions of the north and the southern orange groves, and he who, in the capacity of a friend and physician, had so often stood at the death-bed of others, must, in his turn, meet the dread summons, and his lifeless form, tenderly borne over dreary desert vistas and mountain slopes, again reaches the scene of his life-long labors. Mourning

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friends, bereaved relatives, and sad associates gather around his open grave, and all that is now left of the good physician and faithful friend finds at last a fitting resting-place in Iowa soil."

R. J. FARQUHARSON, M.D.

By W. D. Middleton, M.D., *Davenport.*

Dr. Robert James Farquharson was born in Nashville, Tennessee, July 15th, 1824. A graduate of the University of Nashville, he read medicine with a Dr. Jennings, of his native place, and graduated from the medical department of the University of Pennsylvania in the spring of 1844. His diploma was held for some time by the trustees of that institution, on account of his still being in his minority. Meanwhile he entered Blockley Hospital as interne, and during his service there became intimately acquainted with many of the greatest lights of American medicine in that city of medical education. He practiced his profession in New Orleans, both in hospital and private practice, from 1845 to 1847, when he entered the United States navy as assistant surgeon. His service in the navy gave him extensive opportunities of visiting a great part of the world, and his professional experience at that period has been noted as large and varied. It was while cruising on the coast of Africa that he acquired that deafness which seemed to him so great an affliction, and which had a considerable effect in narrowing his sphere of usefulness professionally, on account of a certain hypersensitiveness in regard to it.

He resigned from the navy, in 1855, to marry Miss Lydia Smith, of his native city; who, with four children, still survives him. He was engaged in professional pursuits in Nashville constantly, from that time till the breaking out of the Rebellion, when, on account of his strong Union proclivities, he was for a time in exile, to return after the occupation of Tennessee by the Federals and resume his work. He held many important positions under Johnson, an intimate friend,

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having great opportunities for professional experiences, and was constantly employed till 1865, when he closed the extensive hospital of the military railroad system and came north.

In 1868 he came to Davenport, doing little practice here, save of a consulting kind and in connection with Mercy Hospital, until his removal to Des Moines, to assume the duties of Secretary of the State Board of Health, in 1880.

He was always a devoted student of the natural sciences, and in his later years had bent his energies largely in the direction of the study of disease in the new light of a proven germ theory and of prophylaxis; so that it was with real pleasure that he entered upon the duties of his office. His work there was cut short by death on the 6th of September, 1884.

He was a man of almost unique attainments. He had been an omnivorous reader, and was blessed with a remarkable memory. Besides this, his actual experiences had been many and varied, and it is seldom any man can accumulate the vast fund of information, professional and otherwise, which he possessed, and which seemed always available in a moment with his orderly memory. There is no doubt that, with his rich scientific acquirements, his literary ability, his close observation, and his conscientious exactness, he would have brought his work up to a high standard, had his life been spared, and made our board the peer of any in the country.

O. S. KNOX, M. D.

By S. N. Pierce, M. D., *Cedar Falls.*

O. S. Knox, M. D., died at his residence, in Waterloo, Iowa, April 9th, 1885, aged 39 years, 10 months, and 16 days. Deceased was born at Bedford, Pennsylvania, May 23d, 1845. He read medicine with a local physician at Bedford, and graduated with honor at the Albany Medical College in 1866. In 1867 he came west and located at Forestown, Illinois, where he married Miss Ellen Smith. Their happy married life was

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terminated six months later by the death of Mrs. Knox. In 1869 Dr. Knox moved to Waterloo, Iowa. Here he married Miss Agnes, daughter of Robert Manson. Two bright twin boys were the fruit of this union, who, with their widowed mother, are left to mourn the loss of father and husband.

Dr. Knox had for some years been a sufferer from Bright's disease, but the disease which caused his death was cerebro-spinal sclerosis, the premonitory symptoms of which disease appeared some six or eight months prior to his death.

He ranked high both as a medical scholar and as a practitioner, and enjoyed an enviable practice as a consulting physician. He took great pride in the *dignity* of his profession, and was uncompromising in his warfare against quackery in all its forms. He was an honored member of the Cedar Valley Medical Society, and a member of the Iowa State Medical Society since 1877.

The following resolutions of respect upon the death of Dr. Knox were passed by the physicians of Waterloo:

"WHEREAS, In the dispensation of divine providence, again our ranks have been invaded, and once more a brother who had distinguished himself in our profession has been called from among us; therefore,

"*Resolved*, That in this visitation we recognize the fiat before which all must sometime bow and the hand that smites but in kindness.

"*Resolved*, That from the life of him whose untimely death we lament, we gather that not years alone bring wisdom and distinction to our profession, but the same untiring industry and devotion ever manifested by him in its practice.

"*Resolved*, That we desire in this public manner to express to friends and citizens our appreciation of his attainments in his profession, his generosity to his patrons, his frankness in all his intercourse, his uniform courtesy to his professional brethren, and such other qualities of mind and heart as will make his loss keenly felt in the homes where he has been daily received for the past sixteen years.

"*Resolved*, That we extend to the family our sympathy in this their sore bereavement, and present them a copy of these resolutions expressive of the same."

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"*Resolved*, That copies be handed to the city papers for publication.

(Signed) "Dr. P. I. BARBER.
Dr. W. C. RICHARDS.
Dr. J. M. BALL, SR.
Dr. A. MIDDLEDITCH.
Dr. W. EDDY.
Dr. D. W. CROUSE.
Dr. G. J. MACK.
Dr. H. W. BROWN.
Dr. C. H. HORTON.
Dr. C. S. CHASE.
Dr. C. I. FULLERTON.
Dr. J. M. BALL, JR."

G. R. HENRY, M.D.

Dr. Greenbury Ridgely Henry was the son of Dr. John F. and Lucy Henry, and was born at Hopkinsville, Christian county, Kentucky, September 28th, 1828, and died at Burlington, Iowa, in May, 1885. He obtained his education at Jacksonville, Illinois, and graduated from the medical college at Louisville, Kentucky. In 1845 he came to Burlington, and five years later married Miss Kate Chambers, of Jacksonville, Illinois. Such, in brief, are the main points in the life of one of Burlington's best citizens, one of its most intelligent and skillful physicians. Aside from his superior professional qualifications and attainments, and his great worth as a healer of the ills of his fellow-men, he was a liberal and energetic citizen, who was ready at all times to invest his earnings in public enterprises, and thus aid and promote the growth of the city of which he was a valuable citizen. He invested largely in the street railways, the steam heating works, the rolling-mill, and other business enterprises established with Burlington capital, and also sought to improve the fine stock of this country by the importation of the best blood from his native State. A Kentuckian, he was naturally an admirer of horses, and for

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years his valuable services have been freely offered to make successful the annual exhibitions of speed at the county fair. He was well known throughout the State as a leading member of the medical profession, being one of the charter members of the State Society, and its Treasurer during the years 1850 and 1853. For several years he was a member of the school board of Burlington, reëlected again and again, as public estimation of his peculiar fitness for the place. The State also honored him with reappointment as Trustee of the Insane Hospital at Mt. Pleasant — an office which he occupied at the time of his death. Dr. Henry had been suffering from an affection of the heart for more than twenty years, and to him the manner of his death was not unexpected; but it was undoubtedly hastened by a cold contracted two months before, during a visit to Chicago.

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In Memoriam.

Complete List of all Deceased Members of the Society, so far as they have been Reported to the Secretary.

✱

R. D. BARTON.
JAMES H. BOUCHER.
J. B. BUCHTEL.
L. L. BUTLER.
JOHN CLEAVES.
M. COUSINS.
H. N. CURTIS.
CHARLES W. DAVIS.
*J. D. ELBERT.
R. J. FARQUHARSON.
JOHN W. FINLEY.
E. J. FOUNTAIN.
E. C. FRANCIS.
D. W. GRAY.
J. F. GRIMES.
J. W. GUSTINE.
ROBERT S. C. GWYNN.
G. R. HENRY.
*J. F. HENRY.
CHRISTIAN HERSCHE.
JOHN G. HOUSE.
GEORGE F. HUBBARD.
SANFORD W. HUFF.
J. Z. HUEY.
*JOHN C. HUGHES.
DELIA S. IRISH.
O. S. KNOX.
A. S. MAXWELL.
HENRY OSBORNE.
W. W. PARKER.
F. G. POLLOCK.
R. W. PRYCE.
SAMUEL RAMAGE.
MARK RANNEY.
CHARLES H. RAWSON.
*GEORGE REEDER.
B. H. REYNOLDS.
J. ROBINSON.
J. F. SANFORD.
WILLIAM H. SMITH.
J. E. STANSBERRY.
J. D. STARKS.
GEORGE W. STEWART.
NATHAN H. TULLOSS.
WILLIAM VOGT.
*J. M. WITHERWAX.
AMOS WITTER.
EDWARD WHINNERY.
J. A. WRIGHT.
R. H. WYMAN.

[Those marked * were Presidents of the Society.]

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CONSTITUTION.

REVISED JANUARY, 1882.

ARTICLE I.

This Society shall be known as the IOWA STATE MEDICAL SOCIETY; it shall be auxiliary to the American Medical Association, and exercise its functions by virtue of the voluntary and plighted faith of its members.

ARTICLE II.

The object of this Society shall be the advancement of medical knowledge, the uniformity of medical ethics, the promotion of harmony and fraternity in the medical profession, the protection of the interests of its members, and the promotion of all measures adapted to the relief of suffering, to improve the health and protect the lives of the community.

ARTICLE III.

SECTION 1. This Society shall consist of delegates, permanent members, members by invitation, and corresponding members, who shall be physicians and surgeons, authorized to practice medicine and surgery by a medical college qualified to grant a diploma and acknowledged by the American Medical Association.

SEC. 2. The delegates and permanent members shall be residents of the State of Iowa. The delegates shall receive their appointment from permanently organized county or local societies and the faculties of medical colleges, in the ratio of one for every five of their regular resident members, with an additional delegate for a fraction greater than one-half that

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number; provided that persons belonging to more than one organization shall only be accredited and represented in one, whichever they may elect. The professional staff of the State Insane, Deaf and Dumb, and Blind Asylums, and every permanently organized hospital of twenty-five beds, shall each be entitled to one delegate.

SEC. 3. The permanent members shall consist of those who have served in the capacity of delegates and have maintained their membership as provided by the By-Laws.

SEC. 4. Members by invitation shall consist of delegates from corresponding societies and of reputable practitioners of this State not accredited as delegates or permanent members, who shall be introduced by at least two members present, or by letters signed by two permanent members, when they may receive their appointment by a vote of the Society, and shall hold their connection with the Society until the close of the annual session at which they were received, with the privilege of participating in all the business of the Society except the right of voting.

SEC. 5. Physicians and surgeons residing in the United States, eminent in the profession and active in promoting its interests, may be elected corresponding members by a vote of two-thirds of the members present; but not more than two corresponding members shall be elected at any annual session.

ARTICLE IV.

The officers of this Society shall be a President, First and Second Vice-Presidents, Secretary, Assistant Secretary, Treasurer, and Board of Trustees. The officers shall be elected annually — the President and Vice-Presidents by ballot; the others as the Society may direct at each meeting. The President and Vice-Presidents shall assume the duties of their respective offices at the last session of the annual meeting at which they were chosen; the other officers immediately after election, except the Assistant Secretary, whose duties shall commence at the next meeting.

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ARTICLE V.

SECTION 1. The President shall preside at all meetings of the Society, preserve order and decorum, decide questions of order, subject to an appeal to the Society. He shall deliver (or, if absent, shall furnish to be read) an address on some suitable subject at the opening of the annual meeting subsequent to his election.

SEC. 2. In the absence of the President the Senior Vice-President shall act as President and perform all the duties of his office.

SEC. 3. The Secretary shall keep, or cause to be kept, a correct record of all the transactions of the Society in a permanent form; give due notice of the next ensuing annual meeting by sending a notice to each member and the secretaries of local and county medical societies at least one month before such meeting; notify all members of committees of their appointment and of the duties assigned to them. He shall hold correspondence with other permanently organized medical societies, serve as a member of the Committee of Publication, supervise the distribution of the published transactions to all members who have paid the annual assessment, and carefully preserve the archives and unpublished transactions of the Society.

SEC. 4. The Assistant Secretary shall aid the Secretary in his duties and perform them temporarily when the office is vacated by resignation, removal, or death. He shall serve as a member of the Committee of Arrangements.

SEC. 5. The Treasurer shall receive and be accountable for all moneys that shall come into his hands by virtue of any of the By-Laws of this Society or otherwise; he shall give good and sufficient bonds to the Trustees for the safe-keeping and disposal of his trust, and shall make a full report to the Society annually.

SEC. 6. A Board of Trustees, consisting of six members, shall be elected. Two members, elected each year, shall hold office for the term of three years, and must be residents of dif-

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ferent congressional districts. The Trustees shall hold the bond of the Treasurer and have general supervision of the affairs of the Society not otherwise provided for. At a request of the majority of the Board, the President may call a special meeting or change the time of holding the annual meeting of the Society.

ARTICLE VI.

This Society shall hold its meetings on the third Wednesday in May of each year, except when the sessions of the American Medical Association include this date; then the President shall name the day, which shall be within two weeks of the third Wednesday in May, and the Secretary shall give not less than thirty days notice of such change.

ARTICLE VII.

The code of ethics of this Society shall be that of the American Medical Association, which is hereby acknowledged as binding upon all of its members, and shall govern the profession of the State of Iowa.

ARTICLE VIII.

No person shall be received as a delegate, nor allowed to sit as a permanent member, nor as a member by invitation, who is under sentence of expulsion or suspension from his local society; but when reinstated in the local society, such action, properly authenticated, shall enable him to resume his membership in this Society; and such suspension shall be construed as causing a suspension of annual dues during its continuance.

ARTICLE IX.

The following standing committees, each composed of five members, shall be organized at each annual meeting:

A Committee of Arrangements, of which the Assistant Secretary shall be a member. They shall make all necessary arrangements for the next meeting, and perform such other duties as the By-Laws may provide.

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A Committee of Publication, of which the Secretary and Treasurer shall be members, to procure the publication of the Transactions under the direction of the Society.

A Committee on Medical Ethics, of which the retiring President shall be chairman. They shall investigate and report upon all cases of differences arising between members, all alleged violations of the code of ethics, and all cases of appeal from local or county societies.

The following standing committees on medicine and surgery, comprised of three members each, shall be organized at each annual meeting, whose duties it shall be to receive all papers contributed to the Society on the subjects connected with their chairs; and before any paper is read it shall have the recommendation of the committee and be handed to the Committee on Arrangements:

Committee on Medicine.

Committee on Surgery.

Committee on Obstetrics and Gynecology.

Committee on Ophthalmology and Otology, etc.

Committee on Materia Medica.

Committee on Hygiene.

Committee on State Medicine.

Committee on Diseases of the Mind and Nervous System.

It shall be the duty of the chairman of each section of these committees on medicine and surgery to report to the Society at each reunion a schedule of what is handed them, and should these be too numerous or too voluminous, and thereby occupy too much time of the Society to be read in full, the committee shall give to the Society a synopsis of their contents. It shall also be the duty of each chairman of these committees to give to the Society, annually, a condensed report of advancement in the science of medicine and surgery during the interval of the sessions of the Society. These reports may be referred to the Committee on Publication or returned to the author with the

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recommendation to publish in some medical journal and permission to announce that they were read before this Society. The committee will be expected to use their discretion in publishing only such of the reports as, after careful examination, they may conclude will be instructive to the profession and do credit to the Society.

A Committee on Necrology, consisting of one member from each congressional district, shall be appointed. It shall collect such facts in regard to the personal history and professional career of its deceased members as may be of interest to the profession, and shall report the same to the Society, which report shall go to the Committee on Publication.

A Committee on Revision of the Constitution and By-Laws shall be appointed each year, to whom shall be referred any proposed changes or amendments.

ARTICLE X.

Every delegate who is not already a member of this Society shall, upon taking his seat, pay the Treasurer the sum of three dollars, and sign the Constitution, with the name of the institution of which he is a graduate, and date of graduation. The annual dues shall be such as shall be fixed by the By-Laws, which, if allowed to remain unpaid for three years, shall cause a forfeiture of permanent membership that can be renewed only as provided by Article III.

ARTICLE XI.

All resignations of membership shall be made in writing, and be accompanied with a certificate from the Treasurer that all the dues to the Society have been satisfied; but no member shall be permitted to resign while charges are pending against him.

ARTICLE XII.

Any alteration or amendment of this Constitution must be submitted in writing, and if submitted at the first session of

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the annual meeting and read at each session, may be adopted at the last session, if the vote be unanimous; but if not, it must lie over until the next annual meeting, when it may be adopted by a two-thirds vote of the members present.

In acknowledgment of having adopted the foregoing articles and our willingness to abide by them and to use our endeavors to carry into effect the objects of this Society as above set forth, we have hereunto affixed our names.

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BY-LAWS.

ARTICLE I.

The order of business at the annual meeting of this Society shall at all times be subject to the vote of two-thirds of the members present, and until permanently changed, except when for a time suspended, shall be as follows, viz.:

1. Calling the meeting to order by the President, or, in his absence, by one of the Vice-Presidents.

2. The report of the Committee of Arrangements on the credentials of members, after they have registered their names and address, and the name of the society or institution they represent, or if in attendance as permanent members.

3. The report of names and the election of members by invitation.

4. Reading the minutes of the last meeting.

5. Reading notes from absentees.

6. Resolutions introducing new business or instructions to standing committees, which shall lie over for consideration.

7. The annual address of the President at the opening of the second session.

8. The appointment of a committee of one from each congressional district, to nominate officers and organize the standing committees.

9. Reception of the reports of special committees and voluntary communications.

10. Report of the Treasurer and standing committees.

11. The selection of the next place of meeting.

12. Report of Nominating Committee, election of officers, and selection of delegates to the American Medical Association and other societies.

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13. Miscellaneous business.
14. Reading of the minutes and their correction.
15. Adjournment.

ARTICLE II.

The Committee of Arrangements shall verify the credentials of delegates, receive and examine all applications and letters of introduction presented by those wishing to become members by invitation; recommend the number and length of sessions to be held daily, receive and announce all voluntary communications, and take general supervision of the arrangement of business coming before the meeting, reporting from time to time as it may be necessary.

ARTICLE III.

Ten members of this Society, including two officers, shall constitute a quorum, and may proceed to business.

ARTICLE IV.

Every member of this Society shall pay to the Treasurer the sum of one dollar annually before participating in the business of the meeting, and if an absent member fail to remit his annual dues he shall not be entitled to receive a copy of the Transactions.

ARTICLE V.

No money shall be drawn from the treasury except by a vote of the Society.

ARTICLE VI.

The Treasurer of this Society shall, before entering upon his duties, give to the Trustees a good and approved bond to the amount of twenty-five hundred dollars ($2,500).

ARTICLE VII.

There shall be appointed annually by the incoming President, for the next ensuing year, a Committee of Finance, consisting of three members, whose duties it shall be to examine

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and audit the accounts of the Secretary and Treasurer, to pass upon all bills referred to them, to examine the books and accounts of any officer whenever they may think it necessary, to suggest such means as they may deem expedient with regard to the finances of the Society, and to make their report for the past fiscal year immediately after the 13th order of business is disposed of.

ARTICLE VIII.

Any violation of the Constitution, By-Laws, or Code of Ethics, shall constitute just grounds for impeachment, and any member convicted of such violation shall be liable to censure, suspension, or expulsion. A vote of two-thirds shall be required to censure or suspend, and one of three-fourths to expel.

ARTICLE IX.

In case of charges being preferred against any member, they shall immediately be referred, without discussion, to the Committee on Medical Ethics, who shall furnish the accused with a written copy, and, if he desire, shall afford him an opportunity of knowing the character of the evidence against him; shall receive and consider such as he may desire to present, and shall make their report to the Society as soon as practicable. If they consider it necessary, or the Society direct, they shall accompany their report with a synopsis or full statement of the evidence. The vote shall be taken without discussion or delay, unless some member desires explanation from the committee upon a point definitely stated.

ARTICLE X.

All committees shall be appointed by the presiding officer, unless otherwise ordered by the Society. He shall also appoint, at each annual meeting, one member from each society or institution represented in or affiliating with this Society, who shall act as a reporter, and whose duty it shall be to communicate to the chairman of the appropriate committee a con-

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cise report of all cases of special interest, or the prevalence of any epidemic that may occur in their several localities, or be reported to the societies; such reports being made at least thirty days previous to the annual meeting.

ARTICLE XI.

The meetings of this Society shall be conducted according to parliamentary rules, and the decisions of the President shall be respected unless properly appealed from and reversed by the Society. A motion or resolution shall be reduced to writing if any member desires it.

ARTICLE XII.

The Committee on Nominations shall report to the Society as candidates for President the two members who received the highest number of votes at the meeting of the committee.

ARTICLE XIII.

Any of the foregoing articles of these By-Laws may be amended or temporarily suspended by a vote of three-fourths of the members present at any meeting.

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OFFICIAL REGISTER.

[From Date of Organization.]

1850.

Enos Lowe, President; D. L. McGugin and J. D. Elbert, Vice-Presidents; H. M. Mathews, Recording Secretary; J. F. Sanford, Corresponding Secretary; G. R. Henry, Treasurer; J. F. Dillon, Librarian.

1851.

D. L. McGugin, President; J. F. Henry, First Vice-President; J. M. Witherwax, Second Vice-President; E. D. Ransom, Recording Secretary; J. F. Sanford, Corresponding Secretary; S. Ramage, Treasurer; J. H. Rauch, Librarian.

1852.

J. D. Elbert, President; J. F. Henry, First Vice-President; J. M. Witherwax, Second Vice-President; S. L. Craig, Recording Secretary; J. F. Sanford, Corresponding Secretary; J. C. Wear, Treasurer; M. Cousins, Librarian.

1853.

J. M. Witherwax, President; Thomas Siveter, First Vice-President; George Reeder, Second Vice-President; J. H. Rauch, Recording Secretary; D. L. McGugin, Corresponding Secretary; G. R. Henry, Treasurer; Asa Morgan, Librarian.

1854.

George Reeder, President; J. M. Robertson, First Vice-President; D. L. McGugin, Second Vice-President; J. Howes, Recording Secretary; C. L. Chambers, Corresponding Secretary; J. H. Rauch, Librarian.

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1855.

Thomas Siveter, President; J. H. Rauch, First Vice-President; W. L. Craig, Second Vice-President; W. Bird, Recording Secretary; D. Atkinson, Corresponding Secretary; J. J. Page, Treasurer.

1856.

J. C. Hughes, President; A. D. Wood, Vice-President; M. Cousins, Recording Secretary; D. L. McGugin, Corresponding Secretary; T. Siveter, Treasurer; H. Carpenter, Librarian.

1857.

Thomas Siveter, President; M. B. Cochran, Vice-President; J. C. Stone, Recording Secretary; T. J. Saunders, Corresponding Secretary; James Gamble, Treasurer; H. Carpenter, Librarian.

1858.

J. H. Rauch, President; E. S. Barrows, Vice-President; J. W. H. Baker, Recording Secretary; W. Bird, Corresponding Secretary; M. B. Cochran, Treasurer.

1859.

E. S. Barrows, President; George Reeder, Vice-President; Allen Phillips, Recording Secretary; Oliver George, Corresponding Secretary; M. B. Cochran, Treasurer.

1860.

R. S. Lewis, President; J. C. Hughes, Vice-President; J. M. Adler, Corresponding Secretary; C. W. Belden, Treasurer.

1861.

J. F. Henry, President; H. T. Cleaver, Vice-President; J. H. Boucher, Recording Secretary; R. J. Patterson, Corresponding Secretary; P. McLaren, Treasurer.

There was no meeting of the Society in 1862 and 1863.

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1864.

M. B. Cochran, President; J. W. H. Baker, Vice-President; S. B. Thrall, Recording Secretary; R. J. Patterson, Corresponding Secretary; P. McLaren, Treasurer.

1865.

J. C. Hughes, President; J. Williamson, Vice-President; J. W. H. Baker, Recording Secretary; W. F. Peck, Corresponding Secretary; William Watson, Treasurer.

1866.

J. W. H. Baker, President; J. C. Lay, Vice-President; W. F. Peck, Recording Secretary; A. M. Carpenter, Corresponding Secretary; M. B. Cochran, Treasurer.

1867.

William Watson, President; E. Whinnery, Vice-President; A. G. Field, Recording Secretary; E. J. B. Statler, Corresponding Secretary; M. B. Cochran, Treasurer.

1868.

Philip Harvey, President; J. W. H. Baker, Vice-President; A. G. Field, Recording Secretary; J. Williamson, Corresponding Secretary; M. B. Cochran, Treasurer.

1869.

S. B. Thrall, President; N. Steele, Vice-President; A. G. Field, Recording Secretary; E. H. Hazen, Corresponding Secretary; H. L. Whitman, Treasurer.

1870.

James Gamble, President; N. Steele, Vice-President; George P. Hanawalt, Recording Secretary; J. Williamson, Corresponding Secretary; J. M. Robertson, Treasurer.

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1871.

A. G. Field, President; J. M. Robertson, Vice-President; George P. Hanawalt, Recording Secretary; J. F. Ely, Corresponding Secretary; J. W. Gustine, Treasurer.

1872.

The Constitution and By-Laws adopted this year provides for the election of *two* Vice-Presidents, and a Secretary and Assistant Secretary instead of "Recording" and "Corresponding" Secretary.

The following is a continuation of the Official Register:

J. Williamson, President; A. M. Carpenter, First Vice-President; J. W. Smith, Second Vice-President; J. W. Gustine, Treasurer; George P. Hanawalt, Secretary; J. D. McCleary, Assistant Secretary.

1873.

W. S. Robertson, President; William Cornes, First Vice-President; John Bower, Second Vice-President; J. W. Gustine, Treasurer; S. B. Thrall, Secretary; J. F. Kennedy, Assistant Secretary.

1874.

H. T. Cleaver, President; J. G. House, First Vice-President; T. J. Caldwell, Second Vice-President; J. W. Gustine, Treasurer; S. B. Thrall, Secretary; J. F. Kennedy, Assistant Secretary.

1875.

W. F. Peck, President; H. Ristine, First Vice-President; H. Osborne, Second Vice-President; J. W. Gustine, Treasurer; S. B. Thrall, Secretary; J. F. Kennedy, Assistant Secretary.

1876.

H. C. Bulis, President; H. Ristine, First Vice-President; S. B. Chase, Second Vice-President; J. W. Gustine, Treasurer; S. B. Thrall, Secretary; J. F. Kennedy, Assistant Secretary.

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1877.

H. Ristine, President; J. W. Gustine, First Vice-President; L. P. Fitch, Second Vice-President; J. F. Kennedy, Secretary; G. O. Morgridge, Assistant Secretary; G. R. Skinner, Treasurer.

1878.

A. M. Carpenter, President; D. W. Crouse, First Vice-President; G. W. Carter, Second Vice-President; J. F. Kennedy, Secretary; W. W. Grant, Assistant Secretary; G. R. Skinner, Treasurer.

1879.

G. P. Hanawalt, President; A. W. McClure, First Vice-President; D. Scofield, Second Vice-President; J. F. Kennedy, Secretary; George W. Tibbits, Assistant Secretary; G. R. Skinner, Treasurer.

1880.

S. B. Chase, President; T. J. Caldwell, First Vice-President; L. J. Alleman, Second Vice-President; J. F. Kennedy, Secretary; M. H. Waples, Assistant Secretary; G. R. Skinner, Treasurer.

1881.

T. J. Caldwell, President; D. Scofield, First Vice-President; M. H. Waples, Second Vice-President; J. F. Kennedy, Secretary; L. C. Swift, Assistant Secretary; G. R. Skinner, Treasurer.

1882.

D. Scofield, President; S. E. Robinson, First Vice-President; H. L. Getz, Second Vice-President; J. F. Kennedy, Secretary; D. Macrae, Assistant Secretary; G. R. Skinner, Treasurer.

1883.

S. E. Robinson, President; H. C. Huntsman, First Vice-President; D. W. Crouse, Second Vice-President; A. A. Deering, Secretary; A. C. Simonton, Assistant Secretary; G. R. Skinner, Treasurer.

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1884.

H. C. Huntsman, President; H. B. Ransom, First Vice-President; C. C. Griffin, Second Vice-President; J. F. Kennedy, Secretary; G. E. Crawford, Assistant Secretary; G. R. Skinner, Treasurer.

1885.

D. W. Crouse, President; A. W. McClure, First Vice-President; A. L. Wright, Second Vice-President; J. F. Kennedy, Secretary; L. C. Swift, Assistant Secretary; G. R. Skinner, Treasurer.

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PERMANENT MEMBERS.

[Members are respectfully requested to notify the Secretary promptly of any errors in the following list, or of any changes produced by death or removal.]

Joined.	Name.	Post-office.	Place and Date Graduated.	
1877	Adair, J. L.	Anamosa	Rush Medical College	1869
1883	Adams, J. W.	Des Moines	Rush Medical College	1881
1859	Ady, A.	Muscatine	Starling Medical College	1851
1884	Ainsworth, O. H.	Sloan	Coll. Phys. and Surg., Keokuk	1878
1874	Alleman, L. J.	Boone	University of New York	1863
1884	Allen, W. L.	Davenport	Iowa State University	1881
1884	Applegate, A. J.	Indianola	Coll. Phys. and Surg., Keokuk	1864
1882	Archer, W. H.	Bear Grove	Iowa State University	1873
1882	Auld, J. H.	Dallas	Coll. Phys. and Surg., Keokuk	1877
1885	Auld, J. M.	Keota	Coll. Phys. and Surg., Keokuk	1880
1885	Avery, Milo	Springdale	Rush Medical College	1884
1878	Baker, E. L.	Indianola	Louisville Medical College	1873
1882	Baker, J. S.	Des Moines	Chicago Medical College	1873
1883	Barstow, J. M.	Council Bluffs	Coll. Phys. and Surg., Keokuk	1880
1885	Batchelder, F. P.	Lyons	Rush Medical College	1881
1875	Baugh, T. W.	Carlisle	Coll. Phys. and Surg., Keokuk	1864
1870	Baxter, W. H.	Wilton	Coll. Phys. and Surg., Keokuk Chicago Medical College	1865 1866
1884	Beatty, T. B.	Anita	Rush Medical College	1884
1875	Beggs, George W.	Sioux City	Rush Medical College	1862
1884	Benson, O. D.	Des Moines	Rush Medical College	1879
1877	Bertram, William	Keokuk	Berlin, Prussia	1849
1875	Bice, D. C.	De Soto	Iowa State University	1875
1884	Bills, E. B.	Durant	Rush Medical College	1879
1879	Bixby, S. N.	Strawberry Pt.	Coll. Phys. and Surg., Keokuk	1877
1881	Blanchard, L.	Edgewood	University of Buffalo	1866
1881	Blythe, Smith G.	Nora Springs	Ohio Medical College Bellevue Hospital Med. Coll.	1867 1877
1884	Booth, W. H.	Altoona	Iowa State University	1877
1877	Bosbyshell, C. B.	Glenwood	Jefferson Medical College	1854
1884	Boucher, F. H.	Brooklyn	Jefferson Medical College	1877
1871	Bowen, A. B.	Maquoketa	Albany Medical College	1868
1881	Boys, William	Waverly	University of Pennsylvania	1864
1882	Brackett, A. B.	Goldfield	Rush Medical College	1869

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Joined.	Name.	Post-office.	Place and Date Graduated.	
1884	Brainard, D. S.	Staceyville	University of Buffalo	1875
1885	Brainard, H. G.	Independence	Rush Medical College	1878
1879	Braunwarth, J. S.	Muscatine	Iowa State University	1876
1881	Bready, John E.	Dubuque	Jefferson Medical College	1878
1881	Brenneman, J. T.	Audubon	Iowa State University	1879
1879	Brice, R. S.	Keota	University of Michigan	1864
1881	Brockman, D. C.	Marengo	Iowa State University	1878
1882	Brookings, D. C.	Xenia	Rush Medical College	1869
1882	Brown, Caleb	Rose Hill	Coll. Phys. and Surg., Keokuk	1877
1884	Brubaker, I. P.	Des Moines	Jefferson Medical College	1881
1874	Bulis, H. C.	Decorah	Vermont Medical College	1854
1884	Bundy, A. D.	St. Ansgar	Coll. Phys. and Surg., Keokuk	1880
1882	Burbank, Oscar	Waverly	Harvard, Medical Department	1848
1877	Burd, Edwin	Lisbon	University of Pennsylvania	1871
1883	Burtt, A. S.	Glenwood	——— ———	1878
1885	Byrne, P. J.	Davenport	Iowa State University	1884
1868	Caldwell, T. J.	Adel	Coll. Phys. and Surg., Keokuk	1863
1884	Cantwell, A. W.	Davenport	University of Michigan	1869
1884	Carder, J. B.	Brooklyn	Long Island Hospital College	1876
1881	Carnahan, A. S.	Andrew	Ohio Medical College	1852
1885	Carpenter, G. P.	Cedar Rapids	Ohio Medical College	1868
1873	Chase, S. B.	Osage	Bowdoin Med. College, Maine	1849
1885	Chase, C. S.	Waterloo	Rush Medical College	1882
1884	Chapman, C. C.	Summerset	Ohio Medical College	1871
1883	Christie, W. H.	Creston	Rush Medical College	1868
1872	Clapp, E. F.	Iowa City	Bellevue Hospital Med. Coll.	1870
1884	Clark, C. F.	Dunlap	University of Michigan	1881
1875	Clark, E. W.	Grinnell	Rush Medical College	1871
1884	Clark, G. P.	Prairie City	Iowa State University	1883
1885	Clark, H. H.	McGregor	Chicago Medical College	1870
1851	Cleaver, H. T.	Keokuk	Coll. Phys. and Surg., Keokuk Chicago Medical College	1862 1872
1883	Cleaver, J. H.	Council Bluffs	University of Maryland	1879
1883	Cloughley, J. F.	Audubon	Coll. Phys. and Surg., Keokuk Louisville Medical College	1878 1883
1884	Cobb, S. M.	Muscatine	Medical School, Maine	1852
1883	Cokenower, J. W.	Des Moines	Louisville Medical College	1880
1882	Colvin, C. M.	Des Moines	Ohio Medical College	1878
1882	Conniff, Harriet	Marshalltown	Iowa State University	1880
1885	Cooling, A. A.	Wilton	Miami Medical College	1872
1867	Cornes, William	Tama City	Coll. Phys. and Surg., Keokuk	1863
1883	Cowden, A. M.	Elvira	Coll. Phys. and Surg., Keokuk	1880
1885	Craig, N. S.	Manchester	Rush Medical College	1871
1884	Crawford, G. E.	Cedar Rapids	Bellevue Hospital Med. Coll.	1879
1885	Crawford, J. P.	Davenport	Iowa State University	1882
1872	Criley, B. H.	Dallas Center	Jefferson Medical College	1871

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Joined.	Name.	Post-office.	Place and Date Graduated.
1873	Crouse, D. W.	Waterloo	Long Island Medical College..1869
1880	Cruttenden, F. E.	Des Moines	University of Buffalo.....1877
1885	Cummings, L. F.	Hopkinton	Iowa State University.....1884
1884	Carfman, H. W.	Malvern	Missouri Med. Coll., St. Louis.1872
1883	Cushman, H.	Brighton	Coll. Phys. and Surg., Keokuk.1864
1881	Cutler, Charles H.	Osage	Rush Medical College.....1880
1880	Darling, J. B	Laporte City	Miami Medical College.....1872
1883	Darnall, C. F	Walnut	Rush Medical College.....1882
1882	Dashiell, M. A	Hartford	Indiana Central Med. College..1851
1883	Davis, W	Mapleton	Bellevue Hospital Med. Coll...1867
1881	Davis, W. C	Indianola	Coll. Phys. and Surg., Keokuk..1878
1885	Davis, W. H	Maquoketa	Jefferson Medical College.....1861
1875	Dean, H. M	Muscatine	Coll. Phys. and Surg., N. Y....1861
1872	Deering, A. A	Boone	Maine Medical College.....1868
1883	Deethan, C	Council Bluffs	Long Island Hospital College.1873
1882	De Motte, C. W	Winterset	Iowa State University.....1881
1884	De Tarr, D. N	Boone	University of Michigan.....1880
1885	Divine, J. H	Sioux Rapids	Coll. Phys. and Surg., Keokuk.1879 Bellevue Hospital Med. Coll..1883
1883	Doherty, D. P	Sioux City	Rush Medical College.....1880
1883	Donelan, J. A	Glenwood	St. Louis Medical College....1874
1882	Dosh, G. W	Guthrie Center	Rush Medical College.....1879
1874	Drake, N. A	Ossian	Rush Medical College.....1868
1880	Druet, S	Marysville	Coll. Phys. and Surg., Keokuk.1874
1882	Drumeler, C. M	Panora	St. Louis Medical College....1876
1881	Dudley, E. H	Shell Rock	Rush Medical College.....1874
1885	Duffin, W. L	Guttenberg	Rush Medical College.....1873
1885	Dunkelberg, R. A.	Denver	University of Michigan.....1880
1884	Dwyer, W. G	Independence	Rush Medical College.....1880
1884	Eckley, W. F	Harper	Iowa State University.....1884
1884	Egan, W. C	Atlantic	Rush Medical College.....1875
1884	Elliott, E. G	Earlham	Coll. Phys. and Surg., St. Jo...1882
1882	Elwood, A. S	Monroe	Cincinnati Medical College...1861
1875	Emmert, J. M	Atlantic	Jefferson Medical College.....1872
1884	Enfield, Charles	Jefferson	Coll. Phys. and Surg., N. Y....1869
1885	Engle, Perry	Newton	University of Michigan.....1871 Long Island Hospital College.——
1878	Ensign, H. D	Boone	Chicago Medical College.....1875
1884	Eschbach, H. C	Des Moines	University of Pennsylvania...1883
1879	Evans, O. E	Gowrie	Coll. Phys. and Surg., Keokuk.1879
1884	Ewing, F. W	Winterset	Michigan College of Medicine.1880
1874	Fairchild, D. S	Ames	Albany Medical College.....1868
1876	Farnsworth, P. J	Clinton	Coll. Phys. and Surg., N. Y....1860
1884	Farr, H. M	Mt. Pleasant	Castleton Medical College....1855
1882	Farr, H. S	Madrid	Iowa State University.....1881

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Joined.	Name.	Post-office.	Place and Date Graduated.
1888	Farrar, C. W.	Nevada	Jefferson Medical College....1872
1865	Field, A. G.	Des Moines	Starling Medical College.....1853 Coll. Phys. and Surg., N. Y....1863
1880	Finarty, J. W.	Dallas	Coll. Phys. and Surg., Keokuk.1877
1884	Finlayson, D. W.	Des Moines	University of Michigan.....1875
1881	Finley, W. H.	Hopkinton	Ohio Medical College.....1858
1873	Fitch, L. P.	Charles City	Coll. Phys. and Surg., N. Y....1864
1883	Fitzgerald, Wm.	Grand Mound	Iowa State University.....1876
1883	Fraser, W. E.	Washington	University of Michigan.....1861
1885	Frederick, Mary D.	Colfax	Coll. Phys. and Surg., Keokuk.1884
1883	Freer, E. D.	Salix	Iowa State University.....1882
1880	French, W. H.	Cedar Rapids	Rush Medical College.....1874
1885	Fullerton, O. J.	Waterloo	Iowa State University.....1884
1882	Gamble, Thos. D.	Wheatland	St. Louis Medical College....1858
1882	Gardner, Ira K.	New Hampton	University of Michigan.....1860
1885	Garlock, A. W.	Dayton	University of Michigan.....1867
1879	Getz, H. L.	Marshalltown	Jefferson Medical College.....1874
1882	Gillett, O. T.	Iowa City	Coll. Phys. and Surg., N. Y....1869
1883	Gilman, H. A.	Mt. Pleasant	Dartmouth Medical College..1866
1882	Given, O. G.	Washington	Rush Medical College.....1869
1877	Goodman, S. F.	Maxwell	Iowa State University.....1875
1871	Gorrell, J. R.	Newton	University of Buffalo..... 1860
1882	Gould, Edith M.	Des Moines	Woman's Med. Coll., Phila....1878
1883	Graham, W. J.	Atlantic	Rush Medical College.....1880
1872	Grant, W. W.	Davenport	Long Island Hosp. Med. Coll..1868
1882	Gray, James D.	Talleyrand	Coll. Phys. and Surg., Keokuk.1854
1882	Grayson, T. F.	Fort Dodge	University of Pennsylvania...1866
1884	Greene, J. H.	Dubuque	University of Buffalo.....1875
1885	Green, W. A.	Webster City	Rush Medical College.....1881
1885	Greig, William	Clarence	Bellevue Hospital Med. Coll..1880
1877	Griffin, C. C.	Vinton	University of Michigan.....1868
1885	Grimes, W. S.	Wapello	Rush Medical College.....1874
1878	Grimmell, G. H.	Jefferson	Coll. Phys. and Surg., Keokuk.1874
1882	Grossman, D. S.	Dallas Center	University of Pennsylvania...1877
1880	Groves, L. S.	Afton	Medical College of Ohio.....1859
1880	Guthrie, Alex	Pella	Medical College of Ohio.....1866
1884	Guthrie, J. W.	Bedford	University of Michigan.....1862
1879	Guyton, B. A.	Sioux City	University of Maryland.....1864
1884	Gwyer, B. B.	Grimes	Long Island Hosp. Med. Coll..1879
1883	Gwynn, R. S.	Madrid	Kentucky School of Medicine.1875
1885	Hadsel, H. S.	Maynard	Coll. Phys. and Surg., Keokuk.1882
1880	Hair, J. H.	Sigourney	Western Reserve Coll., Ohio..1857
1882	Hale, W. W.	Des Moines	Coll. Phys. and Surg., Keokuk.1877
1883	Hall, E. L.	Lettsville	Rush Medical College.....1880
1885	Hamilton, C. H.	Dubuque	Rush Medical College.....1873

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1884	Hammond, S. F.	Fairfield	Rush Medical College 1880
1869	Hanawalt, G. P.	Des Moines	Med. Dept. Geo. Coll., D. C. 1864
1883	Hart, H. W	Council Bluffs	Geneva, New York 1864
1877	Hart, R. J	Low Moor	Iowa State University 1876
1883	Harvey, S. N	Neola	Bellevue Hospital Med. Coll. 1875
1882	Hawk, W. W	Greencastle	Coll. Phys. and Surg., Keokuk 1880
1883	Hawley, W. A	Menlo	Rush Medical College 1880
1867	Hazen, E. H	Davenport	Charity Hospital Med. Coll. 1866
1883	Heilman, E. C	Ida Grove	Medical College of Ohio 1877
1885	Hess, L. M	Iowa City	Iowa State University 1874
1877	Hill, Gershom H.	Independence	Rush Medical College 1874
1881	Hill, Nancy M	Dubuque	University of Michigan 1874
1885	Hill, R. W	Iowa City	Iowa State University 1883
1878	Hillis, D. B	Keokuk	St. Louis Medical College 1847
1859	Hinsey, J. C	Ottumwa	Rush Medical College 1851 University of Pennsylvania 1854
1872	Hobby, C. M	Iowa City	Bellevue Hospital Med. Coll. 1870
1885	Hoffman, R. C	Oskaloosa	Jefferson Medical College 1883
1879	Holliday, J. W	Burlington	Coll. Phys. and Surg., Keokuk 1869
1879	Holman, W. J	Palo	Iowa State University 1876
1884	Holmes, J. D	Audubon	Coll. Phys. and Surg., Keokuk 1875
1875	Howe, J. E	Greenfield	Coll. Phys. and Surg., Keokuk 1873
1879	Hughes, J. C	Keokuk	Coll. Phys. and Surg., Keokuk 1871
1883	Hull, J. H	Ainsworth	Bellevue Hospital Med. Coll. 1875
1885	Hunt, C. H	Stanwood	Chicago Medical College 1874
1880	Hunter, H. E	Newton	Western Reserve Med. Coll., O. 1869
1871	Huntsman, H. C.	Oskaloosa	University of Michigan 1851
1879	Huston, R. W	Eldon	Coll. Phys. and Surg., Keokuk 1879
1885	Hutchins, J. H.	Hampton	Rush Medical College 1871 University of N. Y. City 1881
1885	Hutchinson, W.	Des Moines	University of Michigan 1884
1885	Jenkins, E. R	Westchester	Bellevue Hospital Med. Coll. 1884
1869	Jenkins, G. F	Keokuk	Missouri Med. Coll., St. Louis 1866
1884	Jewell, T. M	Ossian	University of Michigan 1873
1880	Johnson, L. M	Winthrop	Iowa State University 1878
1884	Jones, F. C	Herndon	University of Michigan 1880
1880	Jones, J. E	Stellapolis	Rush Medical College 1871
1883	Jones, L. F	Sac City	University of Pennsylvania 1871
1884	Jones, N. Jasper	Shelby	Iowa State University 1883
1884	Jones, W. H	Forest City	Coll. Phys. and Surg., Keokuk 1874
1883	Joor, Peter	Maxwell	Iowa State University 1881
1884	Kearby, E. W	Elkhart	Louisville Medical College 1881
1882	Kegley, E. A	Ames	Chicago Medical College 1871
1884	Keith, C. E	Atalissa	Iowa State University 1883
1885	Kemper, J. F	Keokuk	Coll. Phys. and Surg., Keokuk 1885

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Joined.	Name.	Post-office.	Place and Date Graduated.	
1869	Kennedy, J. F.	Des Moines	University of N. Y. City	1858
1883	Kibbey, W. B.	Marshalltown	Harvard, Medical Department	1882
1874	Kierulff, B. F.	Marshalltown	Rush Medical College	1867
1885	Kime, J. W.	Ft. Dodge	Iowa State University	1883
1884	King, Azuba D.	Des Moines	Iowa State University	1876
1881	King, E. H.	West Liberty	Detroit Medical College	1870
1883	Kinsey, J. H.	Stuart	Bellevue Hospital Med. Coll.	1866
1876	Knott, J. M.	Sioux City	Columbia Med. Coll., D. C.	1870
1885	Krejci, J. C.	Sioux City	Vienna, Austria	1862
1883	Kriebs, F. J.	Carroll	Rush Medical College	1881
1883	Lacey, T. B.	Council Bluffs	Chicago Medical College	1875
1880	Ladd, J. A.	Traer	Coll. Phys. and Surg., Keokuk	1856
1881	La Grange, J. W.	Marion	Rush Medical College	1877
1879	Langan, D.	De Witt	Coll. Phys. and Surg., Keokuk	1863
1882	Layton, H. R.	Leon	Coll. Phys. and Surg., Keokuk	1874
1884	Leith, A. R.	Wilton	Iowa State University	1882
1884	Le Roy, H. C.	Stuart	University Victoria College	1862
1885	Lewellen, P. W.	Clarinda	Ohio Medical College	1865
1875	Lewis, C. G.	Ottumwa	Coll. Phys. and Surg., Keokuk	1850
1881	Lewis, John S.	Dubuque	Jefferson Medical College	1868
1876	Likes, E. T.	Des Moines	Detroit Medical College	1875
1885	Lilly, M. W.	Grandview	Iowa State University	1872
1882	Lindley, E. M.	Thornberg	University of Michigan	1879
1880	Lonsdale, James	Dale City	Rush Medical College	1879
1882	Loose, D. N.	Maquoketa	University of Pennsylvania	1877
1858	Lothrop, C. H.	Lyons	University of N. Y. City	1858
1875	Love, J. S.	Springville	Jefferson Medical College	1856
1883	Lowry, O. W.	Grand Junc.	Coll. Phys. and Surg., Keokuk	1873
1883	Lytle, S. S.	Iowa City	Iowa State University	188[illegible] 78.
1882	Macrae, D.	Council Bluffs	Edinburg, Scotland	1861
1879	Markham, H. C.	Independence	University of N. Y. City	1859
1884	Maulsby, E. P.	Casey	Coll. Phys. and Surg	1877
1884	Maxwell, T. J.	Keokuk	Coll. Phys. and Surg., Keokuk	1861
1885	McClain, W. H.	Beaman	Chicago Medical College	1878
1883	McCleary, H. C.	Logan	Rush Medical College	1881
1869	McCleary, J. D.	Indianola	Coll. Phys. and Surg., Keokuk	1867
1884	McClees, C. H.	Marne	Iowa State University	1881
1860	McCluer, B.	Dubuque	Massachusetts Med. Coll.	1852
1880	McClure, A. W.	Mt. Pleasant	University of Pennsylvania	1860
1883	McCowen, Jennie	Davenport	Iowa State University	1876
1884	McDonald, O. P.	Keokuk	Coll. Phys. and Surg., N. Y.	1860
1878	McDowell, J. W.	Des Moines	Jefferson Medical College	1866
1883	McGavren, C. W.	Mo. Valley	Rush Medical College	1879
1883	McGorrisk, E. J.	Des Moines	St. Louis University	1856
1881	McGrew, A. G.	Wyoming	Iowa State University	1875

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1882	McKee, J. W	Des Moines	Cleveland Medical College....1870
1881	McKinzie, H. M	Elwood	Rush Medical College.....1874
1884	McLaughlin, H. T.	Washington	Iowa State University.....1881
1871	McMorris	Belle Plaine	University of Michigan.....1864
1885	McNerrvey, S. A.	Danbury	Iowa State University.....1884
1883	McNutt, Robert	Malvern	Jefferson Medical College.....1851
1882	McQuigg, W	Lyons	Cleveland Medical College ...1861
1878	McVay, J. D	Lake City	Coll. Phys. and Surg., Keokuk.1873
1877	McWilliams, T. B.	Sigourney	Coll. Phys. and Surg., Keokuk.1871
1882	Mealey, T. S.	Pleas. Plain	Jefferson Medical College 1842
1885	Mehler, F. C	New London	Rush Medical College.....1863
1885	Melbourne, J. K.	Mechanicsville	Iowa State University.....1881
1879	Meredith, G. A	Ames	University of Michigan.....1872
1877	Meredith, M	Vinton	Ohio Medical College.....1866
1884	Merrill, S	West Liberty	Long Island Hospital College.1876
1870	Middleton, W. D.	Davenport	Bellevue Hospital Med. Coll..1868
1878	Miles, J. D	Washington	Maine Medical College 1853
1879	Miller, R. W	Guthrie	Coll. Phys. and Surg., Keokuk.1876
1885	Miller, W. M	West Liberty	Coll. Phys. and Surg., Keokuk.1883
1880	Minges, George	Dubuque	Bellevue Hospital Med. Coll..1878
1878	Mitchell, J. W	Knoxville	Detroit Medical College.....1870 Jefferson Medical College 1877
1879	Moon, M. B	Iowa City	Iowa State University.....1874
1873	Moorehead, G. C.	Ida Grove	Iowa State University.....1879
1885	Moorehead, S. W.	Eagle Grove	Coll. Phys. and Surg., Keokuk.1883
1870	Morgan, A. W	De Witt	Coll. Phys. and Surg., Keokuk.1870
1875	Morgridge, G. O.	Muscatine	Coll. Phys. and Surg., Keokuk.1870 Iowa State University.....1875
1880	Morrison, J. P	Traer	University of Michigan.....1868
1883	Moser, P. S	Boonesboro	Pennsylvania Med. Coll.....1852
1885	Murphy, J. H	Clermont	Coll. Phys. and Surg., Keokuk.1882
1885	Nichols, Stella B.	Davenport	Woman's Med. Coll., Chicago.1882
1882	Nichols, W. H	Rockford	Iowa State University.....1872
1882	Nicol, J. H	Lacona	Coll. Phys. and Surg., Keokuk.1878
1876	North, John	Keokuk	University of Michigan.....1868
1874	Noyes, A. A	Mason City	Coll. Phys. and Surg., Keokuk.1850
1879	Olney, A. C	Eddyville	Coll. Phys. and Surg., Keokuk.1853
1884	Overholt, D. W	Columbus Junc.	Bellevue Hospital Med. Coll..1872
1881	Packard, F. A	Monmouth	Vermont University.....1873
1880	Page, H. R	Des Moines	Iowa State University.....1871
1875	Pangburn, S	Perry	Medical College of Ohio.....1866 Bellevue Hospital Med. Coll..1869
1879	Park, W. M	Indianola	Coll. Phys. and Surg., Keokuk.1876
1877	Parker, C. C	Fayette	Starling Medical College.....1850
1872	Parr, T. S	Indianola	University of Michigan.....1868

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1881	Patchen, R. A.	Des Moines	Buffalo University 1869
1884	Patterson, S. J	Dunlap	Bellevue Hospital Med. Coll. 1867
1884	Payne, J. M	Bagley	Kentucky School of Medicine 1881
1865	Peck, W. F	Davenport	Bellevue Hospital Med. Coll. 1862
1878	Pierce, S. N	Cedar Falls	Vermont Medical College 1856
1882	Pogue, J. L	Wiota	Chicago Medical College 1877
1882	Pomeroy, J. C	Waverly	Castleton Medical College 1858
1885	Poore, A. B	Cedar Rapids	University of New York City 1879
1884	Porterfield, E	Spring Hill	Bellevue Hospital Med. Coll. 1883
1882	Porterfield, F. W	Colfax	Chicago Medical College 1879
1880	Powers, J. L	Reinbeck	Coll. Phys. and Surg., Keokuk 1876
1879	Powers, M. J	Independence	Pittsfield, Mass 1865
1882	Presnell, J	Scranton	Coll. Phys. and Surg., Keokuk 1854
1875	Preston, C. H	Davenport	Iowa State University 1873
1878	Priestley, J. T	Des Moines	University of Pennsylvania 1874
1881	Pritchard, H	Des Moines	Rush Medical College 1880
——	Quinn, E	What Cheer	Rush Medical College 1878
1883	Randolph, W. F	Bedford	Rush Medical College 1870
1876	Ransom, H. B	Burlington	Coll. Phys. and Surg., N. Y. 1857
1880	Rawson, A. A	Corning	Rush Medical College 1855
1885	Redmond, L	Des Moines	Rush Medical College 1865
1880	Reed, A. B	Cedar Rapids	Wooster Univ., Cleveland, O. 1868
1885	Reid, D	Manson	Rush Medical College 1878
1874	Reynolds, A	Clinton	University of Vermont 1864
1882	Reynolds, E. M	Centerville	Coll. Phys. and Surg., Keokuk 1879
1884	Reynolds, J. D. R.	Creston	Coll. Phys. and Surg., Keokuk 1872 Rush Medical College 1877
1877	Rice, R. C	Smithland	Buffalo Medical College 1876
1885	Riley, John	Exira	Iowa State University 1880
1873	Ristine, H	Cedar Rapids	Ohio Medical College 1851
1878	Ristine, H. G	Ft. Dodge	Rush Medical College 1869
1877	Ristine, J. M	Cedar Rapids	Bellevue Hospital Med. Coll. 1873
1880	Roberts, J	Osceola	Ohio Medical College 1865
1882	Roberts, T	St. Charles	Coll. Phys. and Surg., Keokuk 1874
1877	Robertson, J. C	Dutch Creek	Iowa State University 1873
1861	Robertson, W. S	Muscatine	Jefferson Medical College 1856
1874	Robinson, S. E	West Union	Rush Medical College 1867
1879	Rogers, H. S	Grandview	Coll. Phys. and Surg., Keokuk 1876
1877	Roome, J. S	Calmar	University of Michigan 1866
1882	Ross, A. J	Perry	Coll. Phys. and Surg., Keokuk 1879
1883	Ross, Grant J	Shenandoah	Ohio Medical College 1867
1884	Rowe, G. D	Boone	Bowdoin Med. College, Maine 1868
1880	Sansom, J. E	Vail	Rush Medical College 1878
1877	Schermerhorn, W. S.	Jefferson	Albany Medical College, N. Y. 1853
1880	Schooler, L	Des Moines	Kentucky School of Medicine 1878

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Joined.	Name.	Post-office.	Place and Date Graduated.	
1879	Schultze, W. C	Marengo	Bellevue Hospital Med. Coll	1867
1885	Schumacher, H	Durant	Iowa State University	1882
1875	Scofield, D	Washington	Albany Medical College, N. Y.	1857
1883	Scroggs, J. A	Keokuk	Rush Medical College	1874
1861	Sears, Reuben	Marshalltown	Rush Medical College	1853
1883	Seybert, F. T	Council Bluffs	Iowa State University	1881
1880	Seymour, F. E	Ft. Dodge	Iowa State University	1879
1885	Shearer, T. W	Des Moines	Coll. Phys. and Surg., Chicago	1884
1880	Sherman, J. A	Cherokee	Coll. Phys. and Surg., Keokuk	1873
1884	Sherwood, Thos	Wilton	Miami Medical College, Ohio	1878
1867	Shrader, J. C	Iowa City	Coll. Phys. and Surg., Keokuk Long Island Hosp. Med. Coll	1865 1870
1885	Sigworth, H. W	Anamosa	Rush Medical College	1863
1870	Simonton, A. C	Des Moines	Chicago Medical College	1868
1875	Skinner, G. R	Cedar Rapids	Bellevue Hospital Med. Coll	1866
1855	Skinner, J. O	Polk City	Starling Medical College Coll. Phys. and Surg., Keokuk	1850 1855
1877	Skinner, W. M	Anamosa	Woodstock, Vermont	1858
1877	Sloan, M. G	Dexter	Rush Medical College	1873
1883	Smead, C. C	Knoxville	Rush Medical College	1880
1884	Smith, C. W	Muscatine	Iowa State University	1878
1872	Smith, J. W	Charles City	Yale Medical College	1855
1882	Smith, W. H	Shell Rock	Chicago Medical College	1878
1883	Smitte, D. R	Pleasant Plain	Coll. Phys. and Surg., Keokuk	1876
1885	Smouse, D. W	Des Moines	University of Michigan	1876
1880	Spilman, S. A	Ottumwa	Chicago Medical College	1879
1884	Snook, C	Fairfield	Coll. Phys. and Surg., Keokuk	1869
1879	Staples, G. M	Dubuque	Harvard University	1855
1884	Stark, Alice M	Ottumwa	University of Michigan	1879
1884	Stever, D. H	Fairfield	Coll. Phys. and Surg., Keokuk	1876
1884	Stephenson, R	Centerville	Iowa State University	1867
1885	Stillians, W. C	Clarinda	Rush Medical College	1882
1877	Stockslager, S. O	Boone	Bellevue Hospital Med. Coll	1874
1881	Strout, A. O	Parkersburg	Chicago Medical College	1875
1882	Sturdevant, J. M	Centerville	Coll. Phys. and Surg., Keokuk	1861
1885	Sugg, J. F. H	Sabula	Rush Medical College	1880
1881	Swift, L. C	Des Moines	Coll. Phys. and Surg., N. Y.	1878
1885	Templeton, H. M	Ames	Louisville Medical College	1877
1859	Thrall, S. B	Ottumwa	University of N. Y. City	1853
1882	Thomas, F. S	Carson	Coll. Phys. and Surg., Keokuk	1870
1875	Todd, Wm. A	Garden Grove	Indiana Central Med. College	1874
1880	Turner, J. S	Atalissa	Coll. Phys. and Surg., Keokuk	1875
1882	Udell, N	Centerville	Chicago Medical College	1855
1883	Upson, Rosa M	Marshall town	University of Michigan	1881
1881	VanVelsor, W. M. D.	Humboldt	University of Michigan	1879

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Joined.	Name.	Post-office.	Place and Date Graduated.
1882	Wakefield, J. I	Des Moines	Rush Medical College 1868
1882	Wallace, W. S	Camanche	Coll. Phys. and Surg., Keokuk 1878
1878	Waples, M. H	Dubuque	Jefferson Medical College 1866
1881	Ward, G. B	Fairbank	University of Michigan 1880
1878	Ward, F. M	Marshalltown	Iowa State University 1876
1881	Ward, T. R	Oxford	Iowa State University 1873
1868	Ward, W. H	Des Moines	Coll. Phys. and Surg., Keokuk 1862
1873	Warne, George	Independence	Coll. Phys. and Surg., Keokuk 1850
1885	Watson, B. S	Springville	Iowa State University 1878
1860	Watson, William	Dubuque	Rush Medical College 1854
1880	Watts, J. S	Millersburg	Jefferson Medical College 1867
1880	Weir, F. A	Jesup	Rush Medical College 1879
1880	Welch, Ira L	Humboldt	Cleveland, Ohio 1879
1878	Whitley, J. L	Osage	Rush Medical College 1869
1882	Wick, D. M	New Hartford	Chicago Medical College 1875
1859	Williamson, J	Ottumwa	Western Reserve Med. Coll., O 1852
1882	Wilson, J. B	Creston	Missouri Med. Coll., St. Louis 1870
1881	Wilson, J. N	Sumner	Coll. Phys. and Surg., Keokuk 1876
1881	Wilson, S. G	Independence	Jefferson Medical College 1873
1883	Wood, Irving C	Woodbine	Jefferson Medical College 1880
1885	Woodbridge, Ward	Waubeek	Rush Medical College 1881
1885	Woods, P. N	Fairfield	Rush Medical College 1880
1882	Worden, A. L	Des Moines	University of Michigan 1879
1875	Worley, Joshua	Marshalltown	Starling Medical College 1861
1882	Worthington, D.H	Fairfield	Rush Medical College 1879
1882	Wray, J. H	Winterset	Jefferson Medical College 1877
1877	Wright, A. L	Carroll	Rush Medical College 1874
1877	Xanten, F. A	Avoca	Iowa State University 1876
1882	Young, Henry	Manson	Chicago Medical College 1872
1880	Young, H. B	Burlington	Chicago Medical College 1875
1880	Young, J. W	Bloomfield	Coll. Phys. and Surg., Keokuk 1871

Total number, 410.

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NON-RESIDENT MEMBERS.

The following, though removed from the State, retain their membership by the payment of the annual dues:

Angear, J. J. M.....Chicago, Illinois.
Archibald, O. W.....Ft. Keogh, Montana Territory.
Baker, J. S.....California.
Bates, H. O.....Chicago, Illinois.
Blanchard, J. A.....Florida.
Carpenter, A. M.....St. Louis, Missouri.
Escher, J. F.....San Diego, California.
Kelleher, Thos. F.....——— ———
Windle, Isaac.....Dakota.

CORRESPONDING MEMBERS.

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Steele, N.....Beloit, Kansas.
Hay, Walter.....Chicago, Illinois.
Holmes, G. W.....Tabriz, Persia.

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APPENDIX.

The following is the law regulating the practice of medicine in this State, just enacted. It is believed that its insertion here will be of convenience and interest to the members of our Society.—SECRETARY.

AN ACT TO REGULATE THE PRACTICE OF MEDICINE AND SURGERY IN THE STATE OF IOWA.

Be it enacted by the General Assembly of the State of Iowa:

SECTION 1. That every person practicing medicine, surgery, or obstetrics, in any of their departments, within this State, shall possess the qualifications required by this act. If a graduate in medicine, such person shall present his or her diploma to the State Board of Examiners for verification as to its genuineness. If the diploma is found genuine, and is issued by a medical school legally organized and in good standing, of which the State Board of Examiners shall determine, and if the person presenting and claiming such diploma be the person to whom the same was originally granted, then the State Board of Examiners shall issue its certificate to that effect, signed by not less than five physicians thereof, representing one or more physicians of the schools on the Board; and such certificate shall be conclusive as to the right of the lawful holder to practice medicine, surgery, and obstetrics within this State. If not a graduate, the person practicing medicine or surgery within this State, unless he or she shall have been in continuous practice in this State for a period of not less than five years, of which he or she shall present to the State Board of Examiners satisfactory evidence in the form of affidavits, shall appear before said State Board of Examiners and submit to such examination as said Board may require. All examinations shall be conducted in writing, and all examination papers, together with the reports and action of the examiners thereon, shall be preserved as the records of the

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Board for a period of five years, during which time they shall remain open for inspection at the office of the said State Board of Examiners. Such examinations shall be in anatomy, physiology, general chemistry, pathology, therapeutics, principles and practice of medicine, surgery, and obstetrics: *Provided*, that each applicant, upon receiving from the Secretary of the Board an order for an examination, shall receive also a confidential number, which he or she shall place upon his or her examination papers, so that when said papers are passed upon by the examiners the latter shall not know by what applicant said papers have been prepared; that upon each day of examination all candidates be given the same set or sets of questions. It is further provided that the examination papers shall be marked upon the scale of one hundred (100), and that in order to secure a license it shall be necessary for the applicant to attain such average as shall hereafter be determined by the State Board of Examiners. And if such examination be satisfactory to at least five physicians of said Board, representing the different schools of medicine on the Board, the Board shall issue a certificate, which shall entitle the lawful holder thereof to all the rights and privileges herein provided; and the physicians and the Secretary of the State Board of Health shall constitute and be deemed a Board of Examiners for the purpose of this act.

SEC. 2. The State Board of Examiners shall procure a seal within sixty days after the passage of this act, and through the Secretary of said Board shall receive applications for certificates and examinations. The President, or any member of the Board, shall have the authority to administer oaths and take testimony in all matters relating to their duties as examiners aforesaid. The Board shall provide three forms of certificates: One for persons in possession of genuine diplomas, one for candidates examined by the Board, and one for persons who have practiced medicine or surgery in any of its departments for five years, as provided in this act. Said certificates shall be signed by not less than five physicians of the Board, and this number may act as Examining Board in the absence of the full Board, provided that one or more members of the different schools of medicine represented in the State Board of Health shall also be represented in the Board of Examiners. The Board of Examiners shall hold meetings at such places as will best accommodate applicants residing in different portions of the State, and at such times as they shall deem best, and

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due notice of the time and place of such meetings shall be published.

SEC. 3. The Board shall examine all diplomas submitted to them for such purpose to determine their genuineness and the rightful ownership of the person presenting the same. The affidavit of the applicant and holder of any diploma, that he or she is the person therein named, and is the lawful possessor thereof, shall be necessary to verify the same, with such other testimony as the Board may require. Diplomas and accompanying affidavits may be presented in person or by proxy. If the diploma shall be found genuine, and in possession of the person to whom it was issued, the State Board of Examiners shall, upon the payment of a fee of two dollars to the Secretary of the Board, issue a certificate to the holder of such diploma; and no further fee or sum shall be demanded or collected from said applicant by said Board for such certificate. If the diploma shall be found to be fraudulent, or not lawfully in the possession of the holder or owner thereof, the person presenting such diploma, or holding or claiming possession thereof, shall be deemed guilty of a misdemeanor, and, on conviction thereof before any court of competent jurisdiction, be fined not less than twenty dollars nor more than one hundred dollars.

SEC. 4. Every person holding a certificate issued by the State Board of Examiners shall, within sixty days after the date of such certificate, have the same recorded in the office of the County Recorder in the county wherein he resides; and should he remove from one county to another to practice medicine, surgery, or obstetrics, his certificate must be recorded in the county to which he removes. The County Recorder shall indorse upon the certificate the date of record, and he shall be entitled to charge and receive a fee of fifty cents for his services, to be paid by the applicant.

SEC. 5. The County Recorder shall record in a book provided for that purpose, a complete list of the certificates presented for record, and the date of their issue by the State Board of Examiners. If the certificate is issued by reason of a diploma, the name of the medical college conferring the same, and the date when conferred, shall be recorded; and when such certificate shall have been granted upon the examination of the Board, or because of five years practice in the State, such facts shall be recorded. Said record shall be open for inspection during business hours.

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SEC. 6. Candidates for examination shall pay in advance to the Secretary of the State Board of Examiners a fee of ten dollars, which fee, together with the fees received for certificates, shall defray the entire expense of the aforesaid Board of Examiners, and the balance shall be turned over to the State Treasurer for the benefit of the school fund, except such an amount as will pay each member of the Board ten dollars per day during the time he is in actual attendance upon the session of the said Board for the purpose of performing the duties required of him under this act, and as will pay the Secretary of the Board such a salary as they may allow, not to exceed five dollars per day during the time he is actually engaged in performing the work of the Board under this act; and each member of the Board of Examiners shall also receive a sufficient amount to defray his actual and necessary expenses while in the discharge of the duties herein provided. Any one failing to pass the required examination shall be entitled to a second examination within six months, without fee: *Provided*, that any applicant for examination, by notice in writing to the Secretary, shall be entitled to an examination within three months from the time of said notice; and a failure to give such opportunity shall entitle such applicant to practice without the certificate required by this act until the next regular meeting of said Board.

SEC. 7. The State Board of Examiners may refuse to grant certificates to any person who has been convicted of a felony committed in the practice of his profession, or in connection therewith, and may revoke certificates for like cause, or for palpable evidence of incompetency, and such refusal or revocation shall prohibit such person from practicing medicine, surgery, or obstetrics: *Provided*, such refusal or revocation of a certificate can only be made with the affirmative vote of at least five physicians of the State Board of Examiners, in which number shall be included one or more members of the different schools of medicine represented in said Board; and *provided, further*, that the standing of a legally chartered medical college from which a diploma may be presented shall not be questioned except by a like vote.

SEC. 8. Any person shall be deemed as practicing medicine, surgery, or obstetrics, within the meaning of this act, who shall publicly profess to be a physician, surgeon, or obstetrician, and assume the duties, or who shall make a practice of prescribing, or of prescribing and furnishing medicine for the

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sick, or who shall publicly profess to cure or heal by any means whatsoever; but nothing in this act shall be construed to prohibit students of medicine, surgery, or obstetrics from prescribing under the supervision of preceptors, or gratuitous service in case of emergency; nor shall this act extend to prohibit women who are at this time engaged in the practice of midwifery, nor to prevent the advertising, selling, or prescribing natural mineral waters flowing from wells and springs within the State of Iowa; nor shall this act apply to surgeons of the United States army and navy and marine hospital service, nor to physicians, as defined herein, who have been in continuous practice in this State for five consecutive years, three years of which time shall have been in one locality; *provided*, such physician shall furnish the State Board of Examiners satisfactory evidence of such continuous practice, and shall procure the proper certificate as provided in this act, and for which certificate such physician shall pay to the Secretary of the State Board of Examiners a fee of two dollars, and said Board shall issue to the applicant such certificate; nor shall this apply to registered pharmacists when filling prescriptions, nor shall it be construed to interfere with the sale of patent or proprietary medicines in the regular course of trade.

SEC. 9. Any person who shall practice medicine or surgery within this State without having complied with the provisions of this act, and who is not embraced in any of the exceptions, or after being prohibited from so doing, as provided in section 7 of this act, shall be deemed guilty of a misdemeanor, and shall, on conviction thereof, be punished by a fine of not less than fifty nor more than one hundred dollars, or by imprisonment in the county jail not less than ten days nor more than thirty days.

SEC. 10. Any person who shall file, or attempt to file, with the State Board of Examiners, as his or her own, the diploma of another person, or who shall file, or attempt to file, with the County Recorder the certificate of another person as his or her own, or who shall file, or attempt to file, a diploma or certificate with the true name erased therefrom and the claimant's name inserted, or who shall file, or attempt to file, any forged affidavit of identification, such person shall be deemed guilty of the crime of forgery.

SEC. 11. The penalties, as provided in this act, for violations thereof, shall not be enforced prior to the first day of January, A. D. 1887.

SEC. 12. All acts or parts of acts in conflict with this act are hereby repealed.

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